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Impoverishment and Patients’ “Willingness” and “Ability” to Pay for Improving the Quality of Delivered Care in Palestine: an Assessment Using the Contingent Valuation Method.*

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Abstract: (*No. of word = 111*)

The paper examines the impact of impoverishment on patients’ preferences with respect to improving the quality of delivered care. It makes use of the “natural” impoverishment experience by which passed the Occupied Palestinian Territories following the start of the second Intifada. Using contingent valuation, two random samples of patients revealed their preferences with respect to improving a set of quality attributes, prior and after a severe impoverishment period. Impoverishment seems not to affect patients’ interests in essential quality attributes, like “drug availability”. However, “luxury” quality attributes; e.g., “waiting time”, suffered from income-independent adverse impoverishment effect. We conclude that impoverishment might affect the ability of certain groups of patients to desire adequately.

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

JEL classification: I1, D4, D7

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Introduction:

The early 80s' international economic crisis had substantially aggravated the unfavorable economic trends in many developing countries (Mariko 2003), and signaled the severe deterioration of the economic stability of several middle- and low-income countries (Little et al. 1993). Under the pressure of crisis, these countries responded by implementing structural adjustment programs – proposed, and subsequently demanded, by international organizations such as the World Bank (Cissé et al. 2003), and the International Monetary Fund (Przeworski et al. 2000). Structural adjustment programs obliged these countries to restrict their social public expenditures, including the health care budget (Cotnia et al. 1987), and thus, compromising the provision of good quality services. Various financial alternatives, mainly based on challenging the demand side of health care market, were proposed, and promoted, to remedy deficiencies in public resources (World-Bank 1987). 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 – these are commonly called *cost recovery policies* (Griffin 1992). Mobilized private financial resources were to be used – at least in theory – to improve the quality of delivered care (Dumoulin 1993). Proponents 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 expenditure and attitude surveys (Yoder 1989; Poland et al. 1990). Under alike circumstances, similar financial policies were implemented by some health care providers in the Occupied Palestinian Territories (OPT) – discussed below.

Pricing decisions, however, have proven to be a difficult area of decision making for health care providers who fear that increased fees will cripple demand and create barriers to access for poor clients (Foreit et al. 2003). On the other hand, to date experiences in cost recovery are demonstrating that without visible and immediate improvements in the quality of care, user fees implementation will cause service utilization to drop (Alderman et al. 1996; Mariko 2003). Planning user fees on the basis of patients' *preferences* vis-à-vis improving the quality of health care is another dimension that is increasingly being investigated as a way to assist in informing decision-makers about the potential social consequences of pricing policies, and consequently, allowing for the establishment of socially acceptable and financially sustainable quality improvements (Mataria et al. 2003b). Economic theory provides us with a powerful concept to assess consumers' preferences, namely *Utility*, defined as the extent of welfare procured by the consumer (the patient) from the consumption of a commodity (Varian 2000).

Although, *utility* remains deliberately immeasurable, it can still be apprehended through operational notions like *Value*. The value of a commodity is defined as the maximum sacrifices one would be willing to make in order to acquire it; this represents an assessment of the consumer's *strength of preferences* for the commodity. If a monetary unit is being used to assess sacrifices, the measure is called *willingness to pay* (WTP) (Donaldson 1999).

Different direct and indirect, real and hypothetical, techniques were developed to assess patients' WTP values for various types of health commodities (Gafni 1991); and the most commonly used one is the *contingent valuation* (CV) (Mitchell et al. 1989). Although CV has been mainly developed and applied within areas of public transport (Jones-Lee et al. 1985; O'Reilly et al. 1994) and environment (Kahneman et al. 1992; Hanley et al. 1998), it has also been applied and examined in the context of health care (Donaldson 1990; Diener et al. 1998). As defined by Klose (Klose 1999), CV is a direct hypothetical survey technique used to assess the maximum amount of money the respondent would be willing to pay to benefit from the commodity in question. "*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*" (Mitchell et al. 1989)[p. 2].

Since its first applications in developing countries, CV has become a fashionable manner used to inform, and justify, the implementation of cost recovery policies (Mataria 2003). An implicit assumption in all these studies is the one based on an orthodox economic notion saying that if individuals are "*willing*" to pay the price then they must, somehow, be "*able*" to do so. Russell (Russell 1996) has aptly criticized this assumption by analyzing its *ability to pay* (ATP) component. He argued: "*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.*" (Russell 1996)[p. 220]. Indeed, if a patient states a willingness to pay for a service, and even, if she/he goes further to demand it in the real world, we still cannot always interpret such attitude as a proof of *affordability*. In effect, payments might be made at considerable social costs obligating the patient to give up essential consumption, like education, just to be able to acquire the service. Such attitude can in no way be qualified as a "*willingness to pay*" in the common sense of the words (Waddington et al. 1989), mainly that more complex factors are usually associated with patients' decisions in demanding health care (Russell 1996).

In this paper, we attempt to complement the arguments of Russell (Russell 1996), and to use Amartya Sen's postulate pertaining to what we can comprehend from the inability of certain groups of people to desire adequately (Sen 1992), in order to criticize the first component of the above assumption; i.e., the *willingness to pay* part. We argue that, an absence of WTP cannot be always interpreted as a lack of preferences. Indeed, under poverty conditions, patients might cease to express a willingness to pay for certain aspects of health care for which they were attaching considerable importance before conditions of poverty set in. Using data about patients' WTP values, elicited using 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. Two dimensions of impoverishment-impacts on patients' preferences can be hypothesized: impoverishment can affect the *nature* and/or the *strength* of patients' preferences. By the *nature* of preferences we mean, quality features 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. Our study hopes to provide policy- and decision-makers with broad based information related to the types of quality improvements necessary to assure a successful implementation of financially sustainable, socially acceptable, and equitable cost recovery policies – yet, under different economic environments.

The paper makes use of the sudden and severe impoverishment experience that the OPT experienced and suffered, following the explosion of the second Palestinian *Intifada*, the subsequent tight closures, and more recently, the re-invasion of Palestinian-controlled lands by the Israeli army beginning on 29 March 2002. A general description of the Palestinian health care system and the Palestinian impoverishment experience are presented in the following section. The third section is devoted to present the contingent valuation questionnaire and the econometric/statistical analyses. Our results are presented and discussed in the fourth and fifth sections, and are followed by concluding remarks and some recommendations.

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 (Giacaman et al. 2003). Four principle health care providers, including, a recently “born” Palestinian Ministry of Health

(PMOH), a group of Palestinian Non-Governmental Organizations (PNGO), United Nations, and a private sector (Barghouti et al. 1997), serve approximately 3.7 million Palestinians living in the West Bank and Gaza Strip (PCBS 1999) ([Update the 1999 reference](#)). 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; e.g., PNGOs, became for the most part centrally managed by the PMOH. In order to improve and develop the dilapidated by years of neglect health care infrastructure, and to use a significant share of international funds for creating new health facilities, the PMOH called on the other providers to limit their access to international donations and to ensure a significant part of their financing by themselves. Indeed, this is revealed to be a difficult task to fulfill, especially given that most of these PNGOs had provided their services free of charge or with very limited users' financial contributions. Consequently, a large number of these PNGOs found themselves in a delicate situation obligating them to reduce their activities and sometimes to close their doors (Barghouti et al. 1997)[p. 19]. A potential straightforward solution for this difficult financial impasse is to involve patients in the financing process by mobilizing private resources. Some PNGOs have already used 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 was listed as one of the strategic objectives in the Palestinian National Health Plan (NSHP 1999) [p. 28]. Our study was designed as a way to provide managers of private-not-for profit PHC, and public provider, 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). Indeed, 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 (World-Bank 2003)].

¹ GNI = GDP + remittances from abroad.

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 (World-Bank 2001). More recently, incursions of the OPT by the Israeli army aggravated the conditions even further. After 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 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 (World-Bank 2003). Figure 1 shows how the per capita real GNI and GDP steeply declined during this period. 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 (Figure 2) (World-Bank 2001).

In this paper we use this natural experience 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.

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), primary health care (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 OPT. Respondents were randomly selected amongst patients directly leaving a medical consultation, and after they pass by the local pharmacy. Any adult patient exiting from a doctor's examination room was eligible to take part in the study.

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 techniques (see Appendix A for the corresponding measurement scales). Following, respondents were requested to assess a transition from the *status quo* quality level, as they perceive it, to the “optimal” state of each of the quality attributes, using a *decomposed valuation scenario* (O'Brien et al. 1996) and a *payment card* elicitation technique (Mitchell et al. 1989; Donaldson et al. 1997). In contrast to a *holistic valuation scenario* where a commodity is valued as a whole and one unit, 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 every new coming medical visit – to benefit from the specified improvement. It is worth mentioning that the more the patient would be willing to pay for a service the less she/he would be penalized from a user fee-increase. The valuation process and the WTP questions are presented in Appendix B.

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 sensitivity to scope of CV; i.e., the aptitude of the method to discriminate between the values of different degrees of the commodity being assessed.

In the last section, individual demographic and socioeconomic characteristics; including, gender, age, education (No. of formal schooling-years), 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 Mataria et al. (Mataria et al. 2003a).

² In the early-uprising study, improvements over three other quality attributes were also assessed; these included: *Staff attitude, Meeting the same doctor* and *Chance of recovery*. The four quality attributes included in the late-

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' *nature* and *strength of preferences* with respect to the different proposed quality improvements. We also calculated the percentage of respondents not willing to pay for the improvement(s); those are known as the *non-contributors*. A significant variation in the number of contributors – those stating positive WTP values – between the *early-* and *late-uprising* studies, was interpreted as a variation in the *nature* of patients' preferences. Moreover, a significant variation in the magnitude of WTP values was interpreted as a variation in the patients' strength of preferences. The bivariate analyses involved comparing stated WTP values 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 (Tobin 1958) was used to carry out the multivariate analyses and 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 $WTP > 0$). Indeed, using OLS estimator when a considerable proportion of the observations on the dependent variable are limited "at zero" leads to erroneous estimation of the marginal effects of any independent variable on WTP values (Donaldson et al. 1998). Each of the Tobit regressions involved one of the partial WTP values (dependent variable) regressed over the corresponding quality attribute's *status quo* level and a set of respondents' demographic and socioeconomic characteristics. WTP values are assessed in New Israel 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

uprising study are those suggested by the respondents, and revealed by the analyses, to be the most important from the patients' perspective; see Mataria (Mataria et al. 2003a).

by a coefficient of 0.884. Each of the Tobit regression analyses was followed by the Ramsey RESET test (Ramsey 1969) to assess residuals³.

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 introduced into the model⁴. This was followed by an assessment of all possible interactions between, on one hand, the study phase, and the second hand, respondents' demographic and socioeconomic characteristics, and the level of quality improvements. Following, a stepwise selection procedure was used to detect significant interaction terms – 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 values varied following impoverishment conditions. 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 (StataCorp 2001).

Results:

Sample characteristics:

An equal number of respondents were interviewed during the two study-phases (352 and 353, respectively); 54.5% of those were met in the governmental PHC center. In 80.4% of the cases, the respondent was the patient her/himself, while, in the rest of the cases, mainly where the consulting patient was a child, the accompanying person answered our questions. The majority of the respondents were middle-aged, married housewives and live in rural zones. Most of the patients were insured (81.5%), for the most part by a governmental insurance scheme (>95%). More than the half of the respondents received the service free of charge – these included almost all patients coming to the governmental PHC (>98%), and 14.4% of the patients coming to the NGO PHC center. Respondents' demographic and socioeconomic characteristics, as well as, respondents' perceptions of the service's *status quo* quality level, are summarized in Table 1; the results are also stratified over the two study phases.

³ 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.

⁴ The major changes in the study environment in the late-uprising phase consist of the severe economic crisis and the elevation 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.

Respondents were regrouped based on their household monthly income into intervals of 500 NIS (approximately 110 USD), and the distributions of respondents' income in the *early-* and *late-uprising* studies are presented in Figure 3.

Quality perception:

More than 60% of the 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 the 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 DPR (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* study than in the *early-uprising* study. More respondents were able to find their prescribed medications in the pharmacy of the center in the *late-uprising* study than in the *early-uprising* study (0.001).

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 interesting the patients in most is having a closer PHC center to their domicile. In contrast, the least interesting 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. 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 contributors was noticed for the geographical proximity and the DPR attributes; however, no significant reduction in the number of respondents stating positive WTP values was detected for the waiting time and drug availability attributes. Nevertheless, this result does not take into consideration neither 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 below.

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 center⁵. 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 them, to be able to always find all their prescribed treatments in the center’s local pharmacy ($p < 0.10$).

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 ($p < 0.05$). Females usually do have lower control on household resources which explains their lower stated WTP values. On the other hand, aged patients were willing to pay less than young patients for the various quality improvements; however, this was only significant for the waiting time attribute ($p < 0.05$). Elderly usually benefit from the PHC center environment to socialize and meet people; this might explain their lack of interest for reducing waiting time. No significant differences were detected between the WTP values stated by married and not married respondents. Similarly, neither the level of education of patient nor her/his employment status appeared to play a role on the magnitude of her/his stated WTP values. However, direct money-earners (independents, employees, workers, etc.) – again those who usually control household income – had a tendency to declare higher WTP

⁵ Estimated regression coefficients from the Tobit model can be manipulated to express the marginal effects of the corresponding independent variables on stated WTP values (McDonald *et al.* 1980; Roncek 1992). Indeed, this can be decomposed into two effects: (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 in question. Results of such decomposition are not presented in the paper; for an example of this decomposition see Mataria *et al.* (Mataria *et al.* 2003a).

values in comparison 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. 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 poor were willing to pay substantial amounts to benefit from improvements over this attribute). In general, respondents coming to the center for an acute reason or for a common illness were willing to pay less than those more frequently coming to the center due to a chronic condition – this was only significant for the geographical proximity attribute ($p < 0.01$). One should notice that patients in the former category do usually have a better mobility capacity. Finally, patients recruited from the NGO PHC center were willing to pay more to improve the geographical proximity ($p < 0.01$), waiting time ($p < 0.05$) and DPR ($p < 0.05$) attributes; differences were not clear for the drug availability attribute. Drugs' prices in NGO PHC are usually set 10% above their cost price; consequently, paying an extra user fee to have all the prescribed medications being available in the NGO PHC local pharmacy, shall raise drugs' prices to a level close to prices in private pharmacies. Therefore, although patients in NGO PHC center appear to be more interested in improving quality, this was not the case for the drug availability attribute.

Impoverishment effect:

In order to detect the existence and the nature of impoverishment impact on patients' preferences, we first introduced a binary variable reflecting whether the respondent was recruited during the *early-* or *late-uprising* study. In a second step, all possible interactions between, from one side, the study phase and, from the other side, the quality level variables, the demographic and socioeconomic variables, were introduced into the model. A likelihood ratio test suggested that the model with interaction terms explain the best the differences in stated WTP values, and therefore, the latter was retained as the model of choice and the analysis was repeated using a stepwise selection procedure (p-value for inclusion = 0.10, p-value for exclusion = 0.20).

Impoverishment appears to have a statistically significant negative effect on patients' stated WTP values for improvements over both the geographical accessibility of the PHC center ($p < 0.05$), and the waiting time before meeting the doctor ($p < 0.10$) – the results are adjusted for

the quality variables and respondents' demographic and socioeconomic characteristics. Moreover, the impoverishment negative effect on these two attributes remained significant in the stepwise Tobit regression analyses ($p = 0.015$ and 0.017 , respectively). This indicates a significant variation in patients' preferences with respect to these two quality-attributes due to impoverishment. In other words, the reduction in patients' WTP values was not only due to an income reduction effect but also due to a change in patients' assessment of the value (importance) of these two attributes for them. On the other hand, no significant pure associations were demonstrated between impoverishment and patients' stated WTP values for improvements over the DPR and the drug availability attributes.

To simplify the understanding of interactions between impoverishment and the other independent variables in the model, variables with significant interaction terms, following a stepwise Tobit regression, are presented in a bar chart format in Figure 4. The bar chart representation suggests 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 ($p < 0.05$, $p < 0.01$, $p < 0.05$, respectively) – women usually have a lower control on household resources. Consequently, an equivalent general increase in user fees would penalize females more than males, even if the user fee increments were accompanied with equivalent quality improvements. Aged patients were willing to pay more in the second study phase to have a "Very Close" PHC center; this was significant at 5% level. Indeed, elderly patients represent a class of the population highly sensitive to the difficult circulation conditions caused by checkpoints and closures.

On the other hand, patients living in rural zone were willing to pay more to benefit from closer PHC center ($p < 0.01$), however, in the *late-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 ($p < 0.01$). Respondents suffering from an acute infection or visiting the center due to a common illness have a tendency to be willing to pay more, in the second study phase, 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 tend to pay even more in the second study 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 not direct money-earners (housewives, unemployed, etc.) were willing to pay more in the *late-uprising* study to have a closer PHC center and a better DPR ($p < 0.05$). Indeed, those are the ones who move the least and cross checkpoint the less (to access work, etc); therefore, to avoid 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 with good DPR. Respondents coming to the NGO PHC center were willing to pay more in order to wait less before meeting the doctor ($p < 0.05$). Patients with low perceived health status were willing to pay more, in the *late-uprising* study phase, 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, to have each of the corresponding quality attributes being improved. The former seem becoming willing to support the “Very Long” waiting period in order not to pay more; and the latter are becoming satisfied with the available quality level, even not optimal, also in order to avoid extra payments.

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. Empirical analyses made use of the natural impoverishment experience by which passed the OPT following the start of the second Palestinian Intifada and the subsequent quasi-permanent closures of the Palestinian lands. A causality relationship was demonstrated between impoverishment and modifications in patients’ preferences. Results suggest that, the value of improvements in secondary, “luxury”, quality attributes; e.g., geographical proximity and waiting time, seem to be the most negatively affected by the substantial decrease in patients’ incomes. However, patients’ preferences for essential tangible quality attributes; e.g., drug availability, and DPR, appeared not to be affected by patients’ impoverishment. Indeed, regression analysis demonstrated that variations in patients’ preferences with respect to geographical proximity and waiting time quality attributes **cannot** be completely explained by, and thus only attributed to, the sole decrease in patients’ ATP – a negative impoverishment effect remained significant even after adjusting for patients’ demographic and socioeconomic characteristics (including income). We start this section by discussing this impoverishment effect and its association with patients’ demographic and socioeconomic characteristics. We then attempt to profound the analysis and provide arguments about how CV results should be interpreted in

the light of our study. We conclude by discussing the implication of our results on decisions taken by policymakers regarding financing health care services in developing countries, in general, and in the context of the OPT, in particular.

Impoverishment by itself seems to promote modifications in patients' preferences. In effect, when confronted with severe impoverishment conditions, patients tend to no more prefer certain quality aspects for which they were attaching considerable importance before impoverishment conditions set in. It appears that, under impoverishment conditions, certain groups of patients adapt their expectations to the most basic quality components, and consequently tend to lose the ability to fully express their preferences. Amartya Sen (Sen 1992) qualified such attitude as an inability of certain group of individuals to manage to desire adequately when confronted with severe external poverty conditions. Russell (Russell 1996) 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 this paper we attempted to complement Russell's argument and we advance that *not being willing to pay for a commodity does not automatically imply the absence of preferences for the latter, mainly because under certain conditions patients might adapt their expectations and become no more able to express all their preferences in an adequate manner.*

Our results suggest that impoverishment's consequences hit mainly some of the most vulnerable classes of the population; e.g., women and villagers. WTP values stated by these subgroups of individuals were those most negatively affected by impoverishment. Women usually control less household's resources and this might explain their higher sensitivity to impoverishment conditions. Moreover, villagers were extremely affected by the toppled political situation, mainly due to road closures and siege resulting with forced joblessness and prolonged unemployment – many lost their jobs (in nearby Palestinian cities or in Israel) and lands (Giacaman et al. 2002). In contrast, and ironically enough, as a result of being no more able to easily access city facilities as soon as needed, villagers declared **higher** WTP values in the second study phase to have their medications always available in the PHC center and thus not to be forced to come again to get them or look for them elsewhere. Elderly, in the Palestinian context, usually rely, for the most part, on family financial resources to survive, and they rarely possess the advantage of independent complementary allocations. Nevertheless, and due to difficult transportation conditions (siege and closures), aged patients

stated significantly higher WTP values in the *late-uprising* study phase to benefit from a PHC center located closer to their domicile. Patients with lower school qualifications were also more negatively affected from impoverishment conditions, mainly when the quality improvement, proposed to accompany the user fee increase, consisted of improving the DPR or the drug availability quality attributes.

Recently, WTP has become a concept increasingly used to inform pricing policy decisions in the health sector (Russell et al. 1995; Foreit et al. 2003). It provides policy- and decision-makers with valuable information about patients' reactions to potential changes in pricing strategies; and consequently, about the impact of these changes on service utilization and revenue retention. However, a widely and repeatedly asked question by the beneficiaries of WTP studies – usually non-economists – concerns the relationship between the willingness to pay values, as they are stated by respondents to CV questionnaires, and the ability of the former to pay for the services under investigation. This concern usually emerges from, on one hand, a misunderstanding of some economic concepts related to the microeconomic foundation of “willingness to pay” notion, and on the second hand, an excessive simplification of economic tools to attain applications beyond the reason for which they were developed – these are discussed below.

- *Stated WTP values are used to assess patients' preferences (and only patients' preferences):* The notion of “willingness to pay” has its roots in the neoclassical consumer theory. It was developed to assess consumers' preferences by revealing the maximum amount of money the former would be prepared to sacrifice in order to benefit from the commodity in question. It is **not used** to reveal how the service should be in the patients' perspective; instead, it is **used** to assess the value of the service from the respondents' point of view using monetary units. To say that the patient is *willing* but *not able* to pay for the commodity (an argument commonly used against the use of direct hypothetical WTP studies like CV) appears to be empty from any theoretically consistent meaning – at least, when we aim to pursue empirical analysis on the basis of proper conceptual foundations. To simplify the understanding of the complex interaction between *willingness* and *ability* to pay, Whittington (Whittington 1998) classified respondents' WTP answers into four groups:

		Willingness to pay	
		+	-
ATP	+	Willing & Able (A)	Not Willing but Able (C)
	-	Willing but Not Able (B)	Not Willing and Not Able (D)

Respondents in case (A) declare being willing to pay for the commodity and if they were asked to do so, they would most probably be able to do – those are the *contributors* ($WTP > 0$) and their stated WTP values are the ones interesting CV researchers the most. Cases (C) and (D) are as straightforward as case (A); here, respondents declare not being willing to pay, either because the commodity has no value for them (and they have the money to pay) or because they do not have the ability to pay. In both cases, the money they possess is more valuable for them than the commodity they are asked to pay for – those are the *non-contributors* ($WTP = 0$). When we consider case (B), things become more problematic; here, respondents state positive WTP values that they would not be able to pay if they were asked to do so. Those are in reality *non-contributors*, and should be treated as so. Indeed, the WTP values they were stating do not reflect the value of the commodity for them; they stated such values just to show that the commodity is extremely important in their eyes – this is far away from the essence of CV. Indeed, if they have well understood the principle of CV questions, they would have appeared within case (D).

In his critique of the simple direct association between *willingness* and *ability* to pay of health care-users [case (A)], Russell (Russell 1996) argued that when patients state being willing, and actually do pay, a certain amount, they might still be lacking the ability to pay because they should have spent this money on something else, and the loss of consumption of the latter places them further below some socially defined minimum-consumption standards. Being able to pay does not automatically imply being able to **afford** the health commodity, mainly that more complex factors are usually associated with patients' decision of demanding health care. In other words, payments for health care might be associated with extremely high opportunity cost making health care socially unaffordable (Russell 1996). *Affordability* is defined as a variant of ATP requiring certain external value judgments about income distribution (Varley 1995). 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 (Varley 1995).

- *Contingent valuation and demand studies*: CV has 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 (Johannesson 1993), mainly when applications are to be extended from economic evaluation (a normative perspective) to attain positive economic objectives; e.g., demand assessment and price elasticity estimation (Mataria et al. 2003b). It has been argued that WTP values intended to conduct CBA are to be weighted if patients' preferences are proven to be not equivalently distributed amongst the poor and the rich (Donaldson 1999); in the context of demand assessment for pricing purposes, proper integration of the issues of payments' *affordability* and the *inability to desire adequately* of certain groups of people, are to be considered with extreme seriousness in interpreting WTP data.

If all the interrogations related to WTP results' interpretation have been overcome, there remains the question of how to set prices. WTP could help decision makers by providing information about demand at a given price level – a hypothetical demand curve can be constructed (Mataria et al. 2003b). However, setting the price will depend on the objectives and priorities of the decision maker her/himself; e.g., efficiency versus utilization. Our study shows that under severe impoverishment conditions, patients' WTP values for improving the quality of delivered care diminish steeply. Given that quality amelioration is known to be an unavoidable dimension in determining patients' reaction to price variation (Mariko 2003), using complementary financing mechanisms which are 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 to assure equitable health care utilization.

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; some groups of patients might 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 substantial extra amount of money to benefit from them under relatively “favorable” economic circumstances, patients might be forced to adapt their preferences to the account of some more essential priorities, if “unfavorable” economic conditions set in. Our study suggests that under severe impoverishment conditions, the use of direct cost recovery mechanisms, and the introduction of user fees, as a complementary mean of financing health care, should be prohibited if social welfare is to be promoted. We conclude that CV appears to be a promising methodology to assess the value of health care quality improvements in guiding health care financing policies, both through allocating public resources and mobilizing private revenues. CV provides policymakers with valuable information about health care values, from the users’ perspective, which are sensitive to the economic environment. This should incite a rigorous, and a continuous, planning of health care financing which explicitly takes into consideration the variations in the social economic environment.

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Appendix

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: [20,100] (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(s). 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.

* In phase I, respondents were also requested to assess quality improvements over three other quality attributes; e.g., *staff attitude*, *meeting the same doctor*, and *chance of recovery*. When they were asked to select the three most important attributes for them to be improved, the most frequently cited ones were: *geographical proximity*, *DPR*, and *drug availability*. These were used in phase II – *waiting time* attribute was added to assess changes in waiting time patterns mainly because many PHC centers' directors declare an obvious recent reduction in the number of visiting patients.

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

	All sample	Early-uprising	Late-uprising
	Mean (\pmS.D.) / N (%)	Mean (\pmS.D.) / N (%)	Mean (\pmS.D.) / N (%)
<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%)
Household monthly Income (NIS)	1722.5 (\pm 1182.2)	1872.1 (\pm 1246.5)	1577.1 (\pm 1098.7)
Brut sample size (Response rate)	1031 (68.4%)	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.

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

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

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

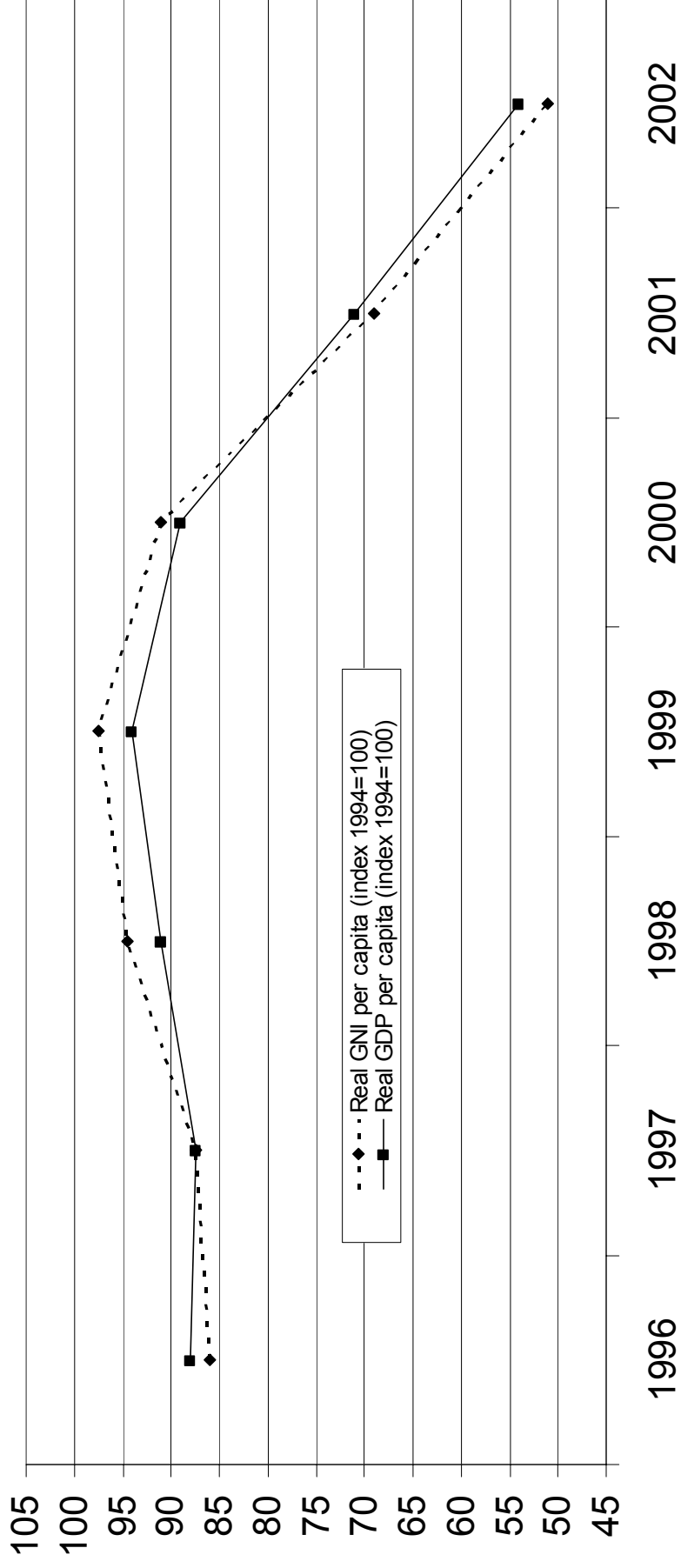
Independent variable	Geog. proximity	Waiting time	DPR [♣]	Drug availability
	(WTP [♠])	(WTP [♠])	(WTP [♠])	(WTP [♠])
	<i>B</i> (<i>B</i> SE)	<i>B</i> (<i>B</i> SE)	<i>B</i> (<i>B</i> SE)	<i>B</i> (<i>B</i> SE)
Constant	-3.977 (6.282)	1.102 (4.230)	17.179 (5.315)***	4.785 (3.790)
<i>Geographical proximity</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.

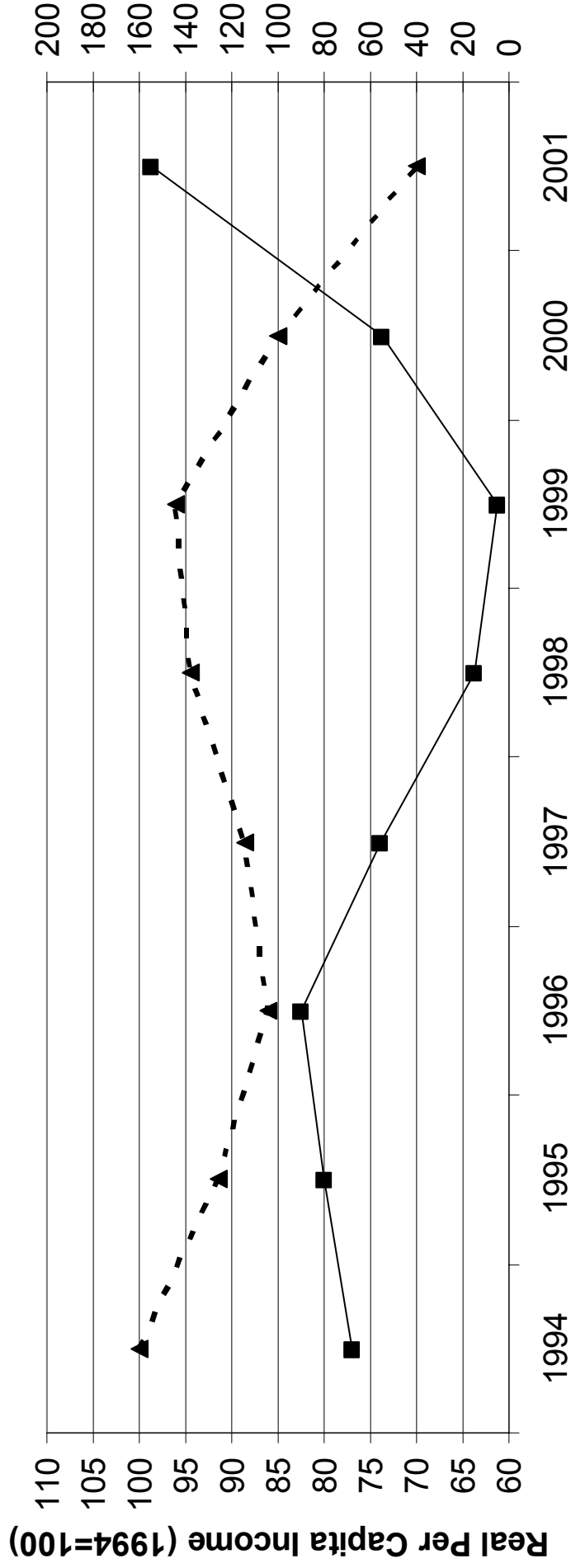
♠: WTP values are assessed in New Israel Shekel (NIS). The value of the NIS during the *early-uprising* study (1 US\$ = 4.20 NIS) was taken as the value of reference. WTP values in the *late-uprising* study (1 US\$ = 4.75 NIS) were reduced by a coefficient of 0.884, to adjust for the NIS depreciation.

Figure 1: Real GNI and GDP per Capita, 1996-2002



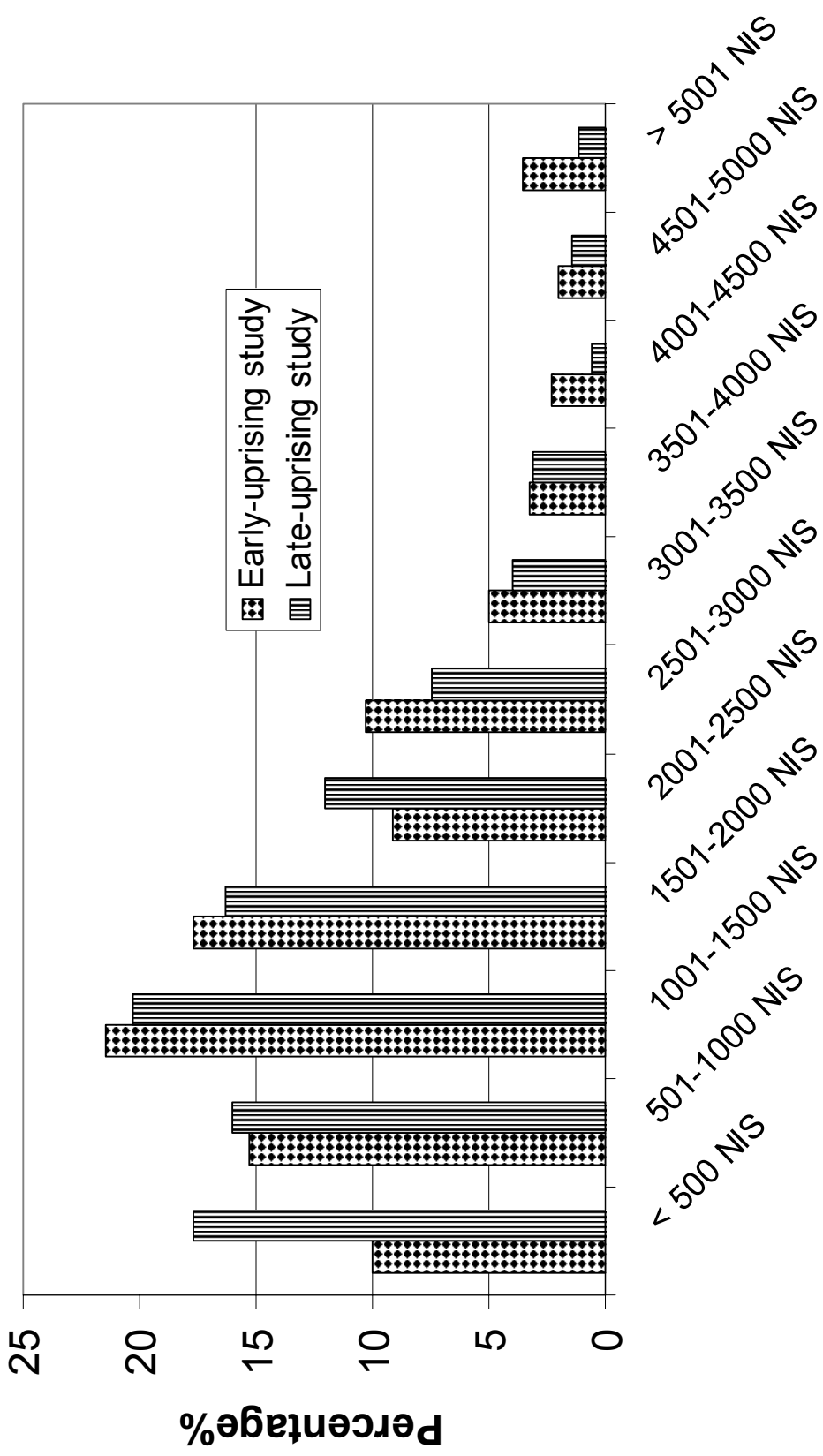
Source: World Bank staff calculations (data excludes East Jerusalem). Adapted from (World-Bank 2003).

Figure2: Per Capita Income and Closures



Source: World Bank staff calculations and UNISCO. Adapted from ([World-Bank 2001](#)).

Figure 3: Household's monthly income (NIS) in the early- and late-uprising studies



During the early-uprising study 1\$ = 4.20 NIS. During the late-uprising study 1\$ = 4.75 NIS.

Figure 4: Impoverishment – other independent variables interactions

