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Substitution effects in household demand for antimalarial bed nets in a rural are of southern Mozambique

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The aim of this paper is to present new evidence on household willingness to pay for antimalarial bed nets in a rural area of southern Mozambique, and to draw attention to the potential substitution effects of combined malaria control interventions such as Indoor Residual Spraying (IRS) and ITNs. Willingness to pay is examined for households who have received IRS as part of a government program.

A random sample of households from the Manhiça Demographic Surveillance Site (DSS) study area was invited to participate in a short questionnaire developed to elicit hypothetical willingness to pay, market knowledge, and bed net ownership and past purchase behavior, with interviews taking place during routine census rounds over a period of three weeks in August 2007. The questionnaire was administered to the head of household or a representative over the age of 18. Survey data were supplemented with demographic surveillance data routinely collected in the study area and include an indication of household fumigation by indoor residual spraying (IRS). A total of 983 household observations were used in the analysis.

Tobit regression was used to investigate variations and determinants of household willingness to pay for antimalarial nets in the presence of alternative methods for mosquito prevention. Multiple regression analysis was used to investigate other determinants of net ownership, purchase behavior, and hypothetical willingness to pay. Ordinary least squares regression was used to explain the variation in number of nets owned and the amount paid for net. All models were subject to rigorous testing.

Substitution with alternative methods of mosquito prevention appears to play a role in demand for nets, with households using alternative methods and households that had received Indoor Residual Spraying (IRS) both willing to pay slightly less on average for nets (p=0.048 and 0.088 respectively). In terms of stated willingness to

pay, households that had received IRS were willing to pay $0.18 less on average for a net, after inclusion of covariates. The magnitude of the effect is similar for households who report using an alternative method of prevention during the previous mosquito season, such as coils, sprays, or traditional methods such as burning of herbs. These findings suggest that malaria control programs which rely on a combination of prevention methods to achieve program effectiveness should consider the potential substitution effects of such strategies. Further research regarding the substitution effects of combined malaria prevention methods is an urgent priority.