Self-Selection Under Uncertainty:

Welfare Effects of Expanding the Probability of Program Access

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Most social insurance and safety net programs in the developed world are designed as entitlement programs in which, in principle, individuals who meet the statutory eligibility criteria are legally entitled to receive the benefit. In practice, however, several features of these programs make effective access probabilistic from the individual's perspective. That is, even if eligible, individuals may face uncertainty about whether they will successfully enroll in the program or will receive full access to its benefits.

Some features introduce uncertainty surrounding pre-selection into the program. Examples include complex administrative burdens, caseworker discretion, and informational barriers, where limited knowledge of eligibility requirements or missing steps in the application process can result in a meaningful probability of denial. Other features generate uncertainty surrounding benefit receipt, conditional on individuals being eligible and enrolled. Errors and recertification problems can create unpredictable interruptions in benefits or probabilistic underpayments. Moreover, in health insurance and food assistance programs such as Medicaid and SNAP in the United States, enrollment itself does not guarantee access: not all providers accept Medicaid patients due to lower reimbursement rates, and not all retailers accept SNAP benefits. As a result, the ability to translate formal eligibility into access to health care or food consumption becomes uncertain.

These design-induced uncertainties reduce the expected benefits individuals effectively receive. Instead of allowing individuals to face probabilistic access to benefits, the government could intervene by ensuring that eligible individuals receive benefits with certainty, while adjusting benefit levels to keep such a reform expected-benefits neutral. Under risk aversion, this shift would increase private welfare for already-eligible individuals: for a given level of expected benefits, individuals strictly prefer receiving those benefits with certainty. However, such a reform would also eliminate a potential advantage of uncertainty in benefit receipt—its role in generating self-selection among applicants. Intuitively, uncertainty around program receipt can relax the incentive-compatibility constraint for high-ability individuals by increasing the risks associated with participation, thereby reducing their incentives to masquerade as low-ability to qualify for the program.

Understanding how uncertainty in benefit receipt shapes individual behavior is crucial for the optimal design of transfer programs. In this paper, following the framework of

Finkelstein and Notowidigdo (2019), I develop a model in which individuals face uncertainty surrounding program participation and analyze the welfare effects of an intervention that increases the probability of receiving the transfer while decreasing the benefit amount, holding expected benefits constant. I first show that, under risk aversion, changes in the probability of benefit receipt and changes in benefit size—while keeping expected benefits fixed—are not equivalent in terms of expected utility. I then calibrate the model by imposing assumptions on relative risk aversion and several additional parameters, together with empirical magnitudes from Medicaid provider-payment reforms that increased the probability of accessing an in-network provider, and illustrate the resulting welfare implications.

I find that such an intervention improves welfare only when the resulting private gains from reduced income risk are sufficiently large to offset the increased mechanical costs and fiscal externalities that arise from behavioral responses to a more attractive program, even when expected benefits remain constant. The lessons from Medicaid may extend to other settings, as many transfer programs contain probabilistic elements in effective access to program benefits. Yet most of the literature on welfare program design does not treat uncertainty as a design parameter that can facilitate self-selection, instead focusing on the welfare effects of reforms to other program parameters.

The main contribution of this paper is to the literature on self-selection mechanisms used to overcome screening problems. This literature has largely focused on imposing barriers—such as administrative burdens, work requirements, and information gaps—that are more costly or less appealing for higher-income or high-ability individuals. These studies highlight the value of such "ordeals" as screening devices that enable greater redistribution (Alatas et al., 2016; Finkelstein and Notowidigdo, 2019; Nichols and Zeckhauser, 1982; Rafkin et al., 2023; Besley and Coate, 1992; Currie and Gahvari, 2008; Deshpande and Li, 2019; Homonoff and Somerville, 2021). A related set of papers examines the take-up and targeting effects of eligibility expansions or increased benefit generosity. An area that has received less attention is how uncertainty surrounding program participation or benefit receipt might improve targeting. Two exceptions are Alatas et al. (2016), which discusses how non-automatic enrollment can, in addition to imposing an application cost, introduce uncertainty surrounding eligibility and discourage participation among higher-income households, and Finkelstein and Notowidigdo (2019), which incorporates participation uncertainty into their framework to study how reducing ordeals affects take-up and targeting. Taken together, this paper contributes by showing that uncertainty itself can serve as a non-price screening mechanism, with important implications for both welfare and optimal program design.

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