Take-Up of Social Benefits

Wonsik Ko and Robert A. Moffitt

Contents

Abstract

Take-up of a social benefit is usually defined as receiving a benefit for which an individual or household is eligible. The take-up rate is the fraction of those eligible for a program who participate and receive a benefit or service. This paper surveys estimates of take-up of social benefits around the world, discusses alternative theories of reasons for incomplete take-up, and surveys the empirical evidence on the importance of different factors. A wide range of take-up rates around the world is found which follow some general patterns but are not easily explained. Theories of incomplete take-up include those involving low monetary or utility gains, stigma of receipt, monetary and nonmonetary costs of program participation, imperfect information, administrative barriers, and mis-measurement. The types of individuals who do and do not take up a program is argued to be determined by the joint distribution of gains and losses across those types which ones face the largest administrative burden of participation and largest information deficits, and face more program operator error. There is a large body of evidence showing the importance of benefit gain and earnings losses from take-up but a smaller body of evidence on other factors, which shows that administrative barriers and costs, lack of information, and stigma all appear to

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K. F. Zimmermann (ed.), *Handbook of Labor, Human Resources and Population Economics*, https://doi.org/10.1007/978-3-319-57365-6_372-1

be important for different programs. While there are no easy solutions to the problem of incomplete take-up, policies to at least lessen the problem are argued to be available, although generally not without increased government expenditure.

Introduction

All countries except those with very low incomes offer some kind of social benefits for lower-income individuals and families. The benefit programs vary in many ways, including eligibility rules, benefit levels, the nature of the benefit (e.g., cash vs. in-kind), funding levels, and administrative operation. Take-up rates, defined as the percent of eligible individuals or families who receive benefits, vary dramatically as well across programs and countries. The term "incomplete" take-up, defined as a take-up rate of less than 100%, is the rule rather than the exception. Incomplete take-up, at least in an open-ended entitlement program – that is, where all applicants who satisfy the eligible requirements for the program are enrolled and given a benefit – constitutes a puzzle to economists which needs a coherent explanation. As in many other areas of economics, incomplete take-up in this situation appears to be a failure to "pick up the $1 bill on the sidewalk."

This paper surveys what is known about take-up rates in social benefit programs around the world. The focus is on means-tested programs rather than social insurance programs because take-up of the latter is of a different nature than for the former. The first section of the paper reports estimates of take-up rates in different countries around the world and, where data are available, how they have changed over time. The second section of the paper reviews the quite disparate explanations that have been suggested for the existence of incomplete take-up in social benefit programs, including monetary and nonmonetary costs of participation, stigma, lack of information, and program operator error. The different factors are formalized in a simple mathematical economic model. The third section of the paper then surveys the literature which has sought to empirically examine causes of incomplete take-up, and reports their results. A final section summarizes the paper's findings and suggests avenues for future research.

Take-Up Rates in Social Benefit Programs Around the World

Issues in Estimating Take-Up Rates

Estimating take-up rates in social benefit programs poses a number of challenges (Bouckaert and Schokkaert 2011; Goedeme and Janssens 2020; Hernanz et al. 2004). For a given population or subpopulation, a take-up rate is defined as the ratio of the number of recipients of a program to the number of eligible units. While simple in concept, data and definitional issues usually create difficulties in

estimation, both for the numerator and denominator of the ratio. These difficulties include: (a) the source of data, (b) the time frame, and (c) measurement error.

The source of the data is important for both the numerator and denominator. The most common approach is to use household or individual survey data to calculate both. Questions asked about recipiency are used for the numerator and questions about income and other eligibility characteristics (age and family structure) are used to calculate eligibility. The latter necessarily requires assumptions that are not needed for the former. Calculating eligibility requires detailed knowledge of program eligibility rules, and those are almost always more complex than survey data can capture. The use of income is essentially universal in calculating eligibility, for example, but usually numerous deductions from gross income are made and these are often difficult to measure in available datasets. Many programs in many countries also have complicated assets tests, with some types of assets considered in eligibility calculations and others not, and with different upper limits for different types (Daponte et al. (1999) show that, in one US program, an initial calculation of eligibility based only on gross income significantly mismeasured eligibility because deductions and assets were ignored. Measurement of assets is known to be very problematic in household surveys. Another issue which is partly a measurement problem and partly a theoretical problem concerns eligibility rules that are related to work requirements, job search requirements, or requirements that the individual be "willing to work." Conditional cash transfer programs also impose some kind of nonfinancial participation requirements as a central feature of the program design. All these requirements involve imposing what is now termed "conditionality." Individuals who do not comply with these requirements could be argued to be treated as ineligible for the program, but it could also be argued that they should be treated as eligible but not participating because of administrative barriers. However, as a practical matter, aside from using easily observable demographic criteria in eligibility calculations (age and family structure), most take-up calculations use only financial eligibility and ignore other requirements imposed by the program which are not measured in the data.

Another problem, discussed more in the next section, is that the program rules themselves may be vague and not fully specified, leaving program administrators to make discretionary judgements. These will also necessarily not be able to be captured in survey data. The unit of interest may be determined by the program rules, which can define the eligibility unit at the individual, family, or household level. But there the definition of the unit in survey data may not coincide with the unit of interest for either the numerator or denominator, if the questions about receipt, and income and other characteristics ask about those variables for units other than that established in program rules.

An alternative source of data for the numerator is administrative or register data. These may be more accurate than survey responses, but the sampling frames may not coincide with those of the survey data which must still be used to calculate the denominator. Register data also usually do not have detailed demographic characteristics, which prevents the calculation of take-up rates for separate subpopulations

defined by those characteristics. Sometimes register data are also available for family income, which is a central element of eligibility, and this can also be used for the denominator.

The time frame is often important because both recipiency and eligibility may vary over time in a fashion that is not captured by the data available. Recipiency can vary over the months of the year or even within months, and most survey data do not collect recipiency at that level of temporal detail. More important, eligibility rules can be applied using income over extended, and possibly varying, time periods (e.g., over the past 6 months, or even prospectively). Another issue is what is generally termed "recertification," which is the nature of program reevaluations of eligibility to determine if income or other circumstances determining eligibility have changed. Those recertifications may be conducted by the program operators at regular or irregular intervals, making it essentially impossible to estimate eligibility precisely at each time point.

Measurement error has already been referred to in some of these other challenges. Survey data in reporting recipiency may be in error but so may administrative or register data, which are often "noisy" and record receipt incorrectly at precise time points. Survey data on eligibility criteria also are often misreported, with income misreporting the most well known. These measurement error problems interact with the inability to precisely measure recipiency or eligibility the way the program does, as already mentioned, making the survey data "inaccurate" in that additional sense as well. Finally, most calculations of take-up rates find in the data some individuals to be recipients who are calculated to be ineligible. This must necessarily be the result of some form of error, but it could be on the program operator side and not on the side of the calculation of eligibility.

Take-Up Rates Around the World

Tables 1, 2 and 3 show some take-up rates for different programs around the world, organized by their World Bank status in 2005 as a High Income, Upper Middle Income, or Lower Middle Income (a discussion of Low-Income World Bank countries is provided below). Because of the large number of countries and programs, there is no claim to this being a fully complete list, but instead just be regarded only as selection to give a sense of the general range of take-up rates. Also, some older studies are not included, mostly those before 2000, with a few exceptions (studies estimating the fraction of ineligibles who receive benefits [e.g., Chapple and Hyslop 2021] are also not included).

Table 1 shows take-up rates for the USA for several major programs. The country's only major cash program covering nondisabled nonworking adults and children was the Aid to Families with Dependent Children (AFDC) program, which had high take-up rates before 1996 reforms (82%) but which has plunged to 28% in more recent years (the program is now called Temporary Assistance for Needy Families, or TANF). The decline is generally ascribed to the work requirements, time limits, and reductions of benefit levels in the TANF program, but without definitive results on the contribution of each (Ziliak 2016; see DHHS (2022) for additional AFDC-TANF take-up rate calculations). This illustrates the importance of

Table 1 Take-up rate of social benefits in the USA

Date	Program	Take-up rate	Notes	Reference
1995	AFDC/ TANF	82%		Falk (2017)
2012		28%	Reform took place in 1996	
2005-2009	EITC	77–81%	Includes nonfilers in eligibles	Jones (2013)
2009	Medicaid	67% for adults, 84% for children	Uninsured eligibles only	Kenney et al. (2012)
2014–2017		46% for adults, 65% for children	Insured and uninsured eligibles	Decker et al. (2022)
1996	SNAP	65% for household level, 69% for individual level		USDA (2022)
2019		84% for household level, 83% for individual level		
2015	Housing Assistance	21%	Rationed program	Kingsley (2017)

major nonfinancial barriers to take-up. The Earned Income Tax Credit (EITC), which offers a tax credit to those who file income taxes and have earnings – and therefore does not cover nonworkers – has a fairly high take-up rate of around 80%. Filing taxes is assisted by for-profit companies in low-income neighborhoods who help families in filing taxes, for a fee. Non-take-up in the EITC program is mostly from not filing taxes in the first place. Take-up rates for the major health insurance program for the poor, Medicaid, are difficult to compute. While some studies show declining rates over time, to around 46% for adults and 65% for children in 2014–2017, the rates are noncomparable across studies and because they use a different base. Eligibility also differs across states and is higher in states that have broader eligibility criteria, and the mix has changed over time. Take-up rates for the US Supplemental Nutrition Assistance Program (SNAP, or Food Stamps) have been growing over time for reasons discussed below – namely, from intentional broadening of eligibility and reductions in administrative barriers – and are, most recently, in the 83–84% range for households and individuals. Still, this leaves 7 million individuals eligible but not receiving benefits. Take-up rates in the US housing programs are very low (21%) primarily because available housing units and vouchers are limited in supply and there is heavy excess demand, so participation is rationed. Collinson et al. (2016) have raised the question of whether it would be superior to offer lower subsidies to more people to relax this constraint, holding expenditures fixed.

Table 2 shows take-up rates in other high-income countries in Continental Europe, the UK, Asia, Oceania, and North America. There is a wide range of participation rates, although it should be kept in mind that the data quality of the estimates of the number of eligibles (and sometimes of the number of participants) varies across countries and across programs and studies within country, making the

Table 2 Take-up rate of social benefits in high-income countries

Country	Date	Program	Take-up rate	Notes	Reference
Europe					
Austria	2003	Social Assistance (Hilfe zur Sicherung des Lebensunterhalts)	44% by numbers of claiming, 52% by the amount of claimed		Fuchs (2007)
	2009	Minimum Income	47%	Pre-reform	Fuchs et al. (2020)
	2015		70%	Post-reform	
Belgium	2005	Guaranteed Income (leefloon/ revenu d'intégration)	24–43%	Some local discretion Willingness to work required	Bouckaert and Schokkaert (2011)
	2011	Increased reimbursement of health care expenditure (OMNIO-statuut/statut OMNIO)	40%		Eurofound (2015)
Denmark	1987–1992	Ordinary Housing Benefit	67%	Some subsidy limits for nonpensioners	Hansel and Hultin (1997)
		Special Housing Benefit	85% for pensioners		
Finland	1995	Minimum Income (Toimeentulotuki)	40%		Bargain et al. (2012)
	1996		56%	Decline not a result of changing demographics	
	2003		49%		
	2010		45%		Eurofound (2015)
	2003	Social Assistance for People with Low Incomes and High Costs	50–60%		

France	1991, 2002	Minimum Income (Revenu Minimum d'Insertion – RMI)	65–67%	Scheme in place from 1988–2009	Finn and Goodship (2014)
	1994–1996		52–65%		Hernanz et al. (2004)
	1999	Housing Benefit (Aides Personelles au Logement, APL)	95–99%	$N = 670$. Sample of households already receiving family benefits	Simon (2000)
	2010–2011	Minimum Income (Revenu de Solidarité Active – RSA socle)	65–72%	Created in 2009. Still in place Out-of-work benefit Willingness to work required	Chareyron (2018)
	2010–2011		64%		Domingo and Pucci (2011)
	2012		82% for homeless which is significantly higher than 65% of general population		Chareyron and Domingues (2018)
	2018		66%		DREES (2022)
	2010–2011	In-work Benefit (Revenu de Solidarité Active – RSA activité)	32%	Scheme in place from 2009–2016	Domingo and Pucci (2011, 2014)
	2011	Complementary Health Insurance Plan (Couverture Maladie Universelle Complémentaire)	76–90%		Warin (2013)
	2011	Subsidized Health Insurance (Aide à l'acquisition d'une Complémentaire Santé)	33–47%		
	2016	In-work Benefit (Prime d'activité – PPA)	73%	Created in 2016. Still in place	MSS (2017)

(continued)

Table 2 (continued)

Country	Date	Program	Take-up rate	Notes	Reference
Germany	1970s–1980s	Minimum Income (Sozialhilfe)	48%		Hernanz et al. (2004)
	1991	Income Support (Hilfe zum Lebensunterhalt)	41–48%		Bargain et al. (2012)
	1993		37%	Confirms long-term decline	Riphahn (2001)
	1996		37%		Kayser and Frick (2000)
	2002		33%	Continued decline	Frick and Groh-Samberg (2007)
	2007	SGB/II and SGB/XII for the Employed under 65, over 65, and Unemployable	42–50%	Take-up rising modestly over time	Bruckmeier and Wiemers (2012)
	2008	SGB/II and SGB/XII for the Employed under 65, over 65, and Unemployable	34–43%		Bruckmeier et al. (2013)
	2005–2014	Unemployment Benefit II (Arbeitslosengeld II)	On average, 44%	Employable persons only	Harnisch (2019)
Greece	1994–2001	Third Child Benefits	31–52%		Finn and Goodship (2014)
		Large Family Benefit	65–87%		
	2004	Minimum Pension Supplement (ΕΚΑΣ)	34–40%		Matsaganis et al. (2010)
	2004–2005		59–71%		Finn and Goodship (2014)
	2004	Pension to Uninsured Elderly (Συνταξηανασφαλίστων υπερηλίκων)	52–71%		Matsaganis et al. (2010)

Ireland	1987	Family Income Supplement	25%	Full-time employment required	Callan et al. (1995)
	1994		23–29%		
	2005		30% by numbers of claiming, 36% by amounts claimed		Callan and Keane (2008)
Luxembourg	2006	Minimum Income (Revenu Minimum Garanti)	46%	No difference in take-up for nationals and immigrants among the less qualified	Amétépé and Hartmann-Hirsch (2010)
	2007		35%		Amétépé (2012)
Netherlands	2002	Housing Allowances	93% among social assistance recipients in the city of Amsterdam		Finn and Goodship (2014)
	2003	Housing benefit (Huurtoeslag)	73%		Eurofound (2015)
	2008–2009		81–82%		
	2003	Law on Contribution to Education and School Costs (Wet Tegemoetkoming Onderwijsbijdrage en Schoolkosten, WTOS)	63–66%		
		Supplementary Minimum Income (Aanvullende Bijstand)	32%		
	2003	Long-term Supplement (Langdurigheidstoeslag)	46%		
	2008		39–41%		
	2008	Special Subsistence Benefit for Participation of School-going Children (Categoriale Bijzondere Bijstand Voor de Participatie van Schoolgaande Kinderen)	53%		

(continued)

Table 2 (continued)

Country	Date	Program	Take-up rate	Notes	Reference
	2008	Care Allowance (Zorgtoeslag)	83%	Those with lowest incomes do not have the highest take-up	Tempelman and Houkes-Hommes (2016)
		Special Subsistence Benefit (Individuele Bijzondere Bijstand)	20–57%		Eurofound (2015)
	2018	General Assistance (Participatiewet)	65%		Inspectie SZW (2021)
Portugal	2001	Minimum Guaranteed Income (Rendimento Mínimo Garantido)	72%		Finn and Goodship (2014)
Spain	2004	Means-tested Benefits to the Elderly	34–40%		Finn and Goodship (2014)
		Pension Supplement Benefit (Complementos por Minimos)	76–80%	Eligibility automatically assessed by pension agency; may receive an invitation to apply	Matsaganis et al. (2010)
		Non-Contributory Pensions (Pension de Jubilacion no Contributiva)	35–60%		
Sweden	1985, 1997	Social Assistance	20–30%		Gustafsson (2002)
Switzerland	2012	Social Assistance Canton of Bern	74%	Cantons set social assistance rules	Hümbelin (2019)

United Kingdom	1996	Income Support	50–70%	Primarily lone parents	Hernanz et al. (2004)
	1997–2000		65–66%		Bargain et al. (2012)
	2000, 2001		86–95%		Hernanz et al. (2004)
	2000, 2001	Minimum Income Guarantee	68–76% for pensioners	Income support for pensioners. Later became Pension Credit	Hernanz et al. (2004)
	2000, 2001	Council Tax Benefit	70–76%		
	2009, 2010		62–69%	Tied to local council taxes	Finn and Goodship (2014)
	2002	Working Families' Tax Credit	68–76%	Minimum hours requirement Expanded in 1999	Eurofound (2015)
	2009, 2010	Pension Credit	62–68%		Finn and Goodship (2014)
	2013–2014		61–64%		Eurofound (2015)
	2014–2015		62%		Department of Work and Pensions (2016)
	2014–2015	Child Benefit	96%	Reform in 2013 introduced a phaseout	HM Revenue and Customs (2016)
	2014–2015	Jobseeker's Allowance	50%	Must be searching for work	Department of Work and Pensions (2016)
	2014–2015	Housing Benefit	76% (nonpensioners)	To be replaced by Universal Credit	

(continued)

Table 2 (continued)

Country	Date	Program	Take-up rate	Notes	Reference
	2014–2015	Income Support-Employment and Support Allowance	82%	For families with children and those unable to work	
	2014–2015	Child Tax Credit	86%		HM Revenue and Customs (2016)
	2014–2015	Working Tax Credit	65%	Minimum hours requirement	
Asia					
Japan	1995–2001	Public Assistance	16–20%		Tachibanaki and Urakawa (2006)
	1996	Child Benefit	23%	Age eligibility based on birth order	Abe (2002)
North America					
Canada	1995–1997	Social Assistance	13–47%	Provincial varation Employability a criterion	Whelan (2010)
	2010–2015	Québec Supplement to the Work Premium	56–65%	Assistance to long-term welfare recipients who have transitioned to work	Daigneault and Macé (2020)
	2016	Québec Universal Child Care Program	51–61% for 1–4 years old	Rationed program	Haeck (2022)[1)]
	2016	Child Benefit	91–92% for excluding reserves, 85–87% for Inuit Nunangat, and 77–82% for non-reserves	New Child Benefit started in 2016	Mendoza (2018)
			88–90%		Robson and Schwartz (2020)
	2015–2017		89%		St-Denis (2020)

Oceania					
Australia	1999	Family Income Supplement	80%	Provides more than minimum family allowance. Need one earner with significant income	Whiteford et al. (2001)
	2002	Parenting Payment	71%	Aimed at cost of raising children	Mood (2006)
	2007–2008	Carer Allowance	79%		Baker (2010)
	2008–2009	Disability Support Pension	98%		
	2007–2008	Bereavement Allowance	100%		
New Zealand	2016	Jobseeker Support	26%	Non-contributory, means-tested program	Chapple and Hyslop (2021)
		Supported Living Payment	41%	For disabled individuals	
		Sole Parent Support	52%	Primarily for nonpartnered individuals	

Note: Income level follows the definition of World Bank classification of countries by income level in 2005. 1) Haeck, Catherine, personal communication, April 8, 2022

Table 3 Take-up rate of social benefits in middle-income countries

Country	Date	Program	Take-up rate	Notes	Reference
Income level: Upper middle					
Europe					
Czech Republic	2010	Housing Allowance (Doplatek Na Bydlení)	30%	Estimates change in allowance if rents rise	Jahoda and Špalková (2012)
Hungary	2003	Regular Social Assistance (Rendszeres Szociális Segély)	55–57%	Must be actively searching for a job. Must participate in a work program	Firle and Szabó (2007)
Lithuania	2011	Social Assistance (Socialine˙ Pašalpa)	32%		Fuchs et al. (2020)
Slovakia	2009	Benefit in Material Need (Pomoc v Hmotnej Núdzi)	21%		Eurofound (2015)
Africa					
South Africa	2011	Child Support Grant	76%	Largest program in Africa. Since 2010, children have to attend school	South Africa Social Security Agency and UNICEF (2013)
Income Level: Lower Middle					
Europe					
Bulgaria	2007	Heating Allowance (целева помощ за отопление)	34–59%		Tasseva (2016)
		Child Allowance (месечна помощ за отглеждане на дете до завършване на средното образование , но не по - късно от 20- годишна възраст)	61–66%		
		Guaranteed Minimum Income (месечна парична помощ поради ниски доходи)	27–53%		

(continued)

Table 3 (continued)

Country	Date	Program	Take-up rate	Notes	Reference
Asia					
China	2007–2009	National Cooperative Medical System	87–93%	All individuals in low-income rural areas offered the program. Cost sharing required	Chen and Jin (2012)
Kazakhstan	2012	Conditional Cash Transfer	48–51%	Requiring school attendance, health care, and attendance at training sessions	O'Brien and Pellerano (2015)

Note: Income level follows the definition of World Bank classification of countries by income level in 2005

estimates only approximate at best. While there are high take-up rates (e.g., over 80%) for some programs in some countries (Australia, Canada, France, Greece, the Netherlands, Portugal, and the U.K., excluding pensioners), most are not high. There are a number of programs with take-up rates in the 62–67% range, but many are around 50%, either a bit above or below. Furthermore, there are a fairly large number of programs with rates in the 32–37% range, and even a few with rates below 30%, which are very low. The countries in Europe have a reputation of greater universality (at least in spirit) of social programs than in the USA, as well as greater social inclusion, but their problems of low take-up seem to be equally widespread and, in fact, lower than those in some US programs.

Many of the countries operate programs through their tax or fiscal authorities, and this typically results in high take-up. In the Netherlands, housing benefits are applied through a government-administered system that already has some information records. Child benefit and child tax credit programs in Canada and the UK are administered through the tax system, and the government attempts to have a registry of most members of the population (unlike in, for example, the USA). As a general rule, countries which have more population-wide registries are more able to reach low-income families than countries without such registries. The French housing benefit take-up is high because the sample includes many families already on benefit, which makes them both more amenable to participation in another program as well as already being present in at least one administrative database already. Some high take-up rates in Australia may be a result of all programs being administered by the same central agency, which both reduces lack of information on the part of participants as well as enables more cross-program administrative data sharing.

Many programs which offer in-work benefits have lower-than-average take-up rates (France before 2016, Ireland), which may have something to do with the greater difficulty in treating earnings for workers than unearned income for nonworkers in benefit and eligibility calculations, or from the need for employer cooperation, if that is required. But the UK has been more successful with such programs, with take-up

rates in excess of 60%, and the French in-work program which began in 2016 has a take-up rate of 73%.

Many of the program with the lowest take-up rates are traditional locally administered programs requiring voluntary application and nonstandardized application and recertification procedures. Administrative barriers in completing application and recertification forms and meeting the many requirements are probably responsible for the often low participation rates in these basic income support programs. It could also be that these programs are more stigmatizing than those operating through tax systems, where social inclusion may be felt more strongly by participants. Rationing can also clearly result in low take-up rates (Quebec child care program).

Table 3 shows take-up rates for a few middle-income countries where rates have been calculated. Most of these programs are not operated through the fiscal authorities of the country but are administered locally through traditional welfare agencies. Most take-up rates are in the middle to lower ranges compared to those of high-income countries (the medical program in China being an exception) and, when comparing the nature of the administrative apparatus, do not appear to be any lower than those in those countries.

There are a large number of estimates of rates of eligibility or recipiency for many programs in countries around the world. These rates are not calculated as a fraction of eligibles, but rather eligibles as a percent of the population, or of the poor population, or some related measure of need. These do not measure the same concept as take-up rates as defined here, but are termed "coverage" rates and are included in Tables 4, 5 and 6 below:

Lower-Middle- and Low-Income Countries

There are no reliable take-up rates for most lower-middle- and low-income countries for their social assistance programs. This is not because those programs do not exist. On the contrary, there has been dramatic growth in social assistance in these countries since the 1990s, with an estimated number of beneficiaries between .75 and 1 billion individuals in 2010 compared to almost nothing in the mid-1990s (Barrientos 2013). Rather, the difference with high-income country programs arises from a number of interrelated reasons having to do with how beneficiaries are selected and the goals of the program (Barrientos 2013; Grosh 1994). One is that lower-middle- and low-income countries do not have as highly developed administrative systems for collecting and verifying individual and family incomes as do high-income countries, making it more difficult to have traditional needs-based income eligibility tests. A related reason is that the agricultural and informal sectors are often large in these countries, and measuring income in those sectors is notoriously difficult. Yet another reason is that both eligibility and benefit "selection" are often more directed from above than in high-income countries. For example, some countries use what information they have to identify which areas of their countries have the greatest poverty rates, then they direct local governments in those areas to conduct outreach and identify eligibles and recipients and solicit their participation. Going along with this is often a high degree of discretion as to who is rewarded with benefits from the program, with local authorities and village committees often

Table 4 Coverage rate of social benefits in high-income countries

Country	Date	Program	Coverage rate	Calculation of coverage rate	Reference
Europe					
Austria	1998, 1999	Minimum Income (Sozialhilfe)	17%	(Entitled to minimum income)/(Population in poverty)	Figari et al. (2013)[a]
Belgium	2006	Minimum Income (Droit a la l'integration sociale)	32%		
Denmark	1995	Minimum Income (Kontant-hjælp; Starthjælp)	18%		
Germany	2002	Minimum Income (Sozialhilfe)	23%		
Finland	2001	Minimum Income (Toimeentulotuki)	48%		
France	2000, 2001	Minimun Income (Revenu Minimum d'Insertion)	25%		
Luxembourg	2001	Minimum Income (Revenu Minimum Garanti)	57%		
Netherlands	2000	Minimum Income (Algemene Bijstand)	30%		
Norway	1993	Financial Assitance	5%	(Number of cases)/(Total population)	Salvanes (2022)[b]
Portugal	2001	Minimum Income (Rendimento Social de Inserção)	37%	(Entitled to minimum income)/(Population in poverty)	Figari et al. (2013)
Slovenia	2005	Minimum Income (Denarna Socialna Pomoc)	43%		
Sweden	2001	Minimum Income (Ekonomiskt bistand)	48%		
United Kingdom	2003, 2004	Income Support	54%		
Asia					
Japan	2015	Social Assistance	8%	(Actual beneficiaries)/(Intended beneficiaries)	Asian Development Bank (2019)[c]
		Active Labor Market Programs	1%		

(continued)

Table 4 (continued)

Country	Date	Program	Coverage rate	Calculation of coverage rate	Reference
Korea, Rep. of	2015	Social Assistance	13%		
		Active Labor Market Programs	4%		
Singapore	2015	Social Assistance	20%		
		Active Labor Market Programs	10%		
North America					
Canada	2004	Child Benefit	85%	(Child benefits greater than zero)/(Total population)	Milligan and Stabile (2011)[d]

Note: Income level follows the definition of World Bank classification of countries by income level in 2005

[a]For the reference with Figari et al. (2013), coverage rate is defined as follows. Coverage rate: sum of those entitled to minimum income (MI) who are either poor or would have been poor in the absence of MI, divided by the population in poverty (60% of median equivalent income). [b]Salvanes, Kjell G, personal communication, April 28, 2022. [c]For the reference with Asian Development Bank (2019), coverage rate, social assistance, and active labor market programs are defined as follows. Coverage rate: the share of actual beneficiaries among intended beneficiaries. Social Assistance: welfare assistance, such as cash or in-kind transfers, child welfare assistance to the elderly, health assistance (tax-funded benefits), and disability benefits. Active Labor Market Programs: skills development and training and public works programs, such as cash for work or food for work. [d]For the reference with Milligan and Stabile (2011), coverage rate is defined as follows. Coverage rate: the proportion of observations with child benefits greater than zero

Table 5 Coverage rate of social benefits in middle-income countries

Country	Date	Program	Coverage rate	Calculation of coverage rate	Reference
Income level: upper middle					
Europe					
Czech Republic	2010–2011	Material Need Benefit (Sociální Dávky Hmotné Nouze)	28%	(Actual beneficiaries)/(Income below living wage)	Horáková et al. (2013)
Estonia	2005	Minimum Income	34%	(Entitled to minimum income)/(Population in poverty)	Figari et al. (2013)[a]
Poland	2005	Minimum Income (Poloc spoleczna)	73%		
Asia					
Malaysia	2015	Social Assistance	3%	(Actual beneficiaries)/(Intended beneficiaries)	Asian Development Bank (2019)[b]
Latin America					
Argentina	2010	Labor Market Programs	1%	(Participating in social programs)/(Total population)	Cerutti et al. (2014)[c]
		Social Assistance	11%		
Chile	2009	Labor Market Programs	54%	(Participating in social programs)/(Total population)	Cerutti et al. (2014)
		Social Assistance	71%		
	2013	Non-Contributory Pension	76%	(Eligible poor receiving benefits)/(Population in poverty)	Robles et al. (2019)[d]
		Conditional Cash Transfer	22%		
Costa Rica	2009	Labor Market Programs	0%	(Participating in social programs)/(Total population)	Cerutti et al. (2014)
		Social Assistance	44%		
	2013	Non-Contributory Pension	53%	(Eligible poor receiving benefits)/(Population in poverty)	Robles et al. (2019)
		Conditional Cash Transfer	24%		
Mexico	2010	Labor Market Programs	0%	(Participating in social programs)/(Total population)	Cerutti et al. (2014)
		Social Assistance	31%		
	2013	Non-Contributory Pension	49%	(Eligible poor receiving benefits)/(Population in poverty)	Robles et al. (2019)
		Conditional Cash Transfer	45%		

(continued)

Table 5 (continued)

Country	Date	Program	Coverage rate	Calculation of coverage rate	Reference
Panama	2008	Labor Market Programs	15%	(Participating in social programs)/(Total population)	Cerutti et al. (2014)
		Social Assistance	52%		
	2013	Non-Contributory Pension	51%	(Eligible poor receiving benefits)/(Population in poverty)	Robles et al. (2019)
		Conditional Cash Transfer	35%		
Uruguay	2009	Labor Market Programs	2%	(Participating in social programs)/(Total population)	Cerutti et al. (2014)
		Social Assistance	42%		
	2013	Conditional Cash Transfer	86%	(Eligible poor receiving benefits)/(Population in poverty)	Robles et al. (2019)
Income Level: Lower Middle					
Asia					
Armenia	2015	Social Assistance	23%	(Actual beneficiaries)/(Intended beneficiaries)	Asian Development Bank (2019)
		Active Labor Market Programs	0%		
Azerbaijan	2015	Social Assistance	20%		
		Active Labor Market Programs	1%		
China	2007–2009	Minimum Living Standard Guarantee (Dibao)	6–11%	(Eligible poor receiving Dibao)/(Income below Dibao thresholds)	Golan et al. (2014)[e]
	2015	Social Assistance	17%	(Actual beneficiaries)/(Intended beneficiaries)	Asian Development Bank (2019)
		Active Labor Market Programs	2%		
Georgia	2015	Social Assistance	25%		
Indonesia	2015	Social Assistance	35%		
		Active Labor Market Programs	4%		
Maldives	2015	Social Assistance	12%		
Philippines	2015	Social Assistance	32%		
		Active Labor Market Programs	1%		
Sri Lanka	2015	Social Assistance	55%		

		Active Labor Market Programs	0%		
Thailand	2015	Social Assistance	19%		
		Active Labor Market Programs	5%		
Latin America					
Bolivia	2013	Non-Contributory Pension	97%	(Eligible poor receiving benefits)/(Population in poverty)	Robles et al. (2019)
		Conditional Cash Transfer	77%		
Brazil	2009	Labor Market Programs	7%	(Participating in social programs)/(Total population)	Cerutti et al. (2014)
		Social Assistance	21%		
	2013	Non-Contributory Pension	43%	(Eligible poor receiving benefits)/(Population in poverty)	Robles et al. (2019)
		Conditional Cash Transfer	62%		
Colombia	2013	Non-Contributory Pension	44%	(Eligible poor receiving benefits)/(Population in poverty)	Robles et al. (2019)
		Conditional Cash Transfer	53%		
Dominican Republic	2009	Labor Market Programs	0%	(Participating in social programs)/(Total population)	Cerutti et al. (2014)
		Social Assistance	24%		
	2013	Conditional Cash Transfer	33%	(Eligible poor receiving benefits)/(Population in poverty)	Robles et al. (2019)
Ecuador	2010	Labor Market Programs	0%	(Participating in social programs)/(Total population)	Cerutti et al. (2014)
		Social Assistance	61%		
	2013	Non-Contributory Pension	71%	(Eligible poor receiving benefits)/(Population in poverty)	Robles et al. (2019)
		Conditional Cash Transfer (Bono de Desarrollo Humano)	64%		
			73%	(Beneficiaries)/(Population in poorest quintile)	Rinehart and Mcguire (2017)[f]
El Salvador	2009	Labor Market Programs	0%	(Participating in social programs)/(Total population)	Cerutti et al. (2014)
		Social Assistance	67%		
	2013	Non-Contributory Pension	9%	(Eligible poor receiving benefits)/(Population in poverty)	Robles et al. (2019)
		Conditional Cash Transfer	11%		
Guatemala	2013	Non-Contributory Pension	11%		
		Conditional Cash Transfer	49%		

(continued)

Table 5 (continued)

Country	Date	Program	Coverage rate	Calculation of coverage rate	Reference
Honduras	2013	Conditional Cash Transfer	29%	(Eligible poor receiving benefits)/(Population in poverty)	Robles et al. (2019)
Jamaica	2013	Non-Contributory Pension	35%		
		Conditional Cash Transfer	57%		
Paraguay	2009	Labor Market Programs	0%	(Participating in social programs)/(Total population)	Cerutti et al. (2014)
		Social Assistance	34%		
	2013	Non-Contributory Pension	30%	(Eligible poor receiving benefits)/(Population in poverty)	Robles et al. (2019)
		Conditional Cash Transfer	11%		
Peru	2009	Labor Market Programs	0%	(Participating in social programs)/(Total population)	Cerutti et al. (2014)
		Social Assistance	57%		
	2013	Non-Contributory Pension	27%	(Eligible poor receiving benefits)/(Population in poverty)	Robles et al. (2019)
		Conditional Cash Transfer	34%		

Note: Income level follows the definition of World Bank classification of countries by income level in 2005

[a]For the reference with Figari et al. (2013), coverage rate is defined as follows. Coverage rate: sum of those entitled to minimum income (MI) who are either poor or would have been poor in the absence of MI, divided by the population in poverty (60% of median equivalent income). [b]For the reference with Asian Development Bank (2019), coverage rate, social assistance, and active labor market programs are defined as follows. Coverage rate: the share of actual beneficiaries among intended beneficiaries. Social assistance: welfare assistance, such as cash or in-kind transfers, child welfare assistance to the elderly, health assistance (tax-funded benefits), and disability benefits. Active labor market programs: skills development and training and public works programs, such as cash for work or food for work. [c]For the reference with Cerutti et al. (2014), coverage rate, labor market programs, and social assistance are defined as follows. Coverage rate: the percentage of population participating in social protection programs (includes direct and indirect beneficiaries), and it is calculated for the total population. Labor market programs: unemployment benefits and active labor market programs. Social assistance: cash transfer program/last resort program, social pensions, family, child, or disability allowances, conditional cash transfer program, food stamps and vouchers, food rations, supplementary feeding, emergency food distribution, housing allowances, school feeding, scholarships/educational credit, fee waivers, health, subsidies, preferential credit, cash-for-work, food-for-work, and public works. [d]For the reference with Robles et al. (2019), coverage rate is defined as follows. Coverage rate: the percentage of eligible poor who receive benefits from the program. [e]For the reference with Golan et al. (2014), coverage rate is defined as follows. Coverage rate: the percent of eligible individuals (with incomes below the Dibao thresholds) who receive Dibao transfers. [f]For the reference with Rinehart and Mcguire (2017), coverage rate is defined as follows. Coverage rate: the percentage of beneficiaries among poorest quintile

Table 6 Coverage rate of social benefits in low-income countries

Country	Date	Program	Coverage rate	Calculation of coverage rate	Reference
Asia					
Bangladesh	2015	Social Assistance	13%	(Actual beneficiaries)/(Intended beneficiaries)	Asian Development Bank (2019)[a]
		Active Labor Market Programs	3%		
Bhutan	2015	Social Assistance	5%		
		Active Labor Market Programs	0%		
Cambodia	2015	Social Assistance	33%		
		Active Labor Market Programs	0%		
Kyrgyz Republic	2015	Social Assistance	13%		
		Active Labor Market Programs	0%		
Lao PDR	2015	Social Assistance	4%		
		Active Labor Market Programs	2%		
Mongolia	2015	Social Assistance	27%		
		Active Labor Market Programs	1%		
Myanmar	2015	Social Assistance	0%		
Nepal	2015	Social Assistance	15%		
		Active Labor Market Programs	0%		
Pakistan	2015	Social Assistance	16%		
		Active Labor Market Programs	0%		

(continued)

Table 6 (continued)

Country	Date	Program	Coverage rate	Calculation of coverage rate	Reference
Tajikistan	2015	Social Assistance	7%		
		Active Labor Market Programs	0%		
Uzbekistan	2015	Social Assistance	13%		
Vietnam	2015	Social Assistance	31%		
		Active Labor Market Programs	1%		

Note: Income level follows the definition of World Bank classification of countries by income level in 2005

[a]For the reference with Asian Development Bank (2019), coverage rate, social assistance, and active labor market programs are defined as follows. Coverage rate: the share of actual beneficiaries among intended beneficiaries. Social assistance: welfare assistance, such as cash or in-kind transfers, child welfare assistance to the elderly, health assistance (tax-funded benefits), and disability benefits. Active labor market programs: skills development and training and public works programs, such as cash for work or food for work

determining who they think is most deserving and selecting recipients on a variety of local criteria. Finally, many of these countries have stronger employment and human capital goals in their programs, often with conditionality associated with receipt.

These factors can be illustrated with a brief description of three of the largest programs: Dibao in China, Bolsa Familia in Brazil, and the Mahatma Gandhi National Rural Employment Guarantee Scheme program in India (a useful compendium of many of the programs around the world can be found in the Social Assistance in Low- and Middle-Income Countries Dataset, Social Protection Organization [2022]). The Dibao has a rural program and an urban program but only the former is discussed (Gao 2017), as the two are similarly designed and the rural Dibao covers much more people than the urban one (there were around 36 million rural Dibao recipients and 8 million urban Dibao recipients in 2020). Ambitious in intent, it is essentially an unconditional guaranteed income program which aims to raise the income of any family below a poverty threshold up to the threshold (hence it is a "fill-the-gap" program). Its distinctive feature is that eligibility, thresholds, and benefit amounts are usually at the prefecture-level city level, and entitlement usually requires local Hukou (meaning they have to be officially registered to live there). Village committees and local leaders advertise the program, accept applications, and choose who to accept (and possibly solicit applications). Visits are often made to the homes of applicants to inspect their physical assets (ownership of vehicles, refrigerators, condition of the home, etc. – known as "proxy" means tests), but also the employment status of the family members and the presence of poor health conditions

or disability. Take-up rates cannot be really defined for this kind of program given the subjective judgements and criteria used in the determination of eligibility and selection of beneficiaries. In addition, local and provincial governments generally share the financing of the program with the central government, with less central government sharing in more affluent areas. Some areas set their thresholds and other program parameters partly depending on their ability to finance their share of program costs. Studies which have obtained data on income of recipients and used those to calculate targeting have found that the program is poorly targeted, including many recipients with incomes above the local threshold and many nonrecipients with income below it (Gao 2017; Golan et al. 2017; Kakwani et al. 2019). Both the percent of recipients estimated to be ineligible and the percent of eligibles not receiving benefits have been estimated around 90% or a little above or below (Golan et al. 2017; Kakwani et al. 2019). But targeting loses some of its meaning when criteria other than income are used in beneficiary selection and, in fact, targeting errors fall when a more multidimensional measure of need is used (Han and Gao 2019; see Feng et al. [2022] for a review of the literature on the impacts of the DiBao program).

The Bolsa Familia program in Brazil is a conditional cash transfer program that provides cash benefits to low-income families conditional on their meeting certain school attendance goals for children and health checkup goals for the children and pregnant women. Unlike the smaller Progresa/Oportunidades program in Mexico, eligibility is based on income and not on proxy means tests. It operates in Brazilian municipalities which are targeted by their poverty levels and which solicit applications and collect information on household income, which is then forwarded to the central government which makes the actual eligibility calculation (Lindert et al. 2007). Soares et al. (2010) find that 59% of the poor are not beneficiaries and that 49% of beneficiaries are ineligible, rates lower than those for the rural Dibao program – possibly because of the more clearly defined eligibility condition and the centralized calculation of eligibility, plus being an urban rather than rural program – but are still high. The high non-take-up rate may be partly because some families decline to participate because of the conditionality, preferring their children to go to work instead of stay in school, for example (although there is a problem with monitoring compliance with the conditions for beneficiaries as well). The human capital goal of the conditionality differentiates the program from the pure cash transfer type in China, and this can affect take-up.

The National Rural Employment Guarantee Scheme in India aims to provide 100 days of government-provided paid employment in rural areas to one family member per household willing to volunteer to do unskilled manual work at the minimum wage, without any household income requirement (Sukhtankar 2016). With no income requirement, take-up is conceptually difficult to define, and eligibility should theoretically probably be defined as all those who would experience at least an earnings gain, if not a utility gain, from volunteering for the program. The program is operated at the district level but with enrollment at the village level, and the federal government allocates funds across districts and aims to target the poorest and satisfy other requirements. Like many public works programs, local

governments find it difficult to create enough projects (they have to share in the cost as well) to satisfy demand for employment and there is consequently excess demand for the program (Sukhtankar 2016; Dutta et al. 2012). Dutta et al. (2014) find that only 56% of those desiring work can obtain employment with one of the program projects. Effectively, the program is rationed, although the poorest households appear to be given priority (Dutta et al. 2014). Also, perhaps not surprisingly, corruption is present at the village level (Jeong et al. 2021; Niehaus and Sukhtankar 2013a, b), with evidence that local politicians use the funds for political purposes (Shenoy and Zimmermann 2021).

Theories of Incomplete Take-Up

The general static framework for constructing a taxonomy of reasons for incomplete take-up considers program recipiency to be an interaction between individual and program operator decisions. Recipiency occurs if both the individual sees the expected benefits net of expected costs to be positive and if the program operators allow the individual to receive benefits. A dynamic framework decomposes these actions into an application decision, a decision by program operators, and then future application and operator decisions with branches depending on whether the individual is or is not a recipient.

There has been a great deal of work written on delineating these factors. A broad classification of the reasons using the static framework divides the reasons into those involving expected benefits, expected costs, and program operator decisions. Each of these three is discussed briefly, in turn (among the many papers discussing these issues, see Van Oorschot [1991], Remler and Glied [2003], Hernanz et al. [2004], and Currie [2006] for early classifications and Eurofound [2015], Van Mechelen and Janssens [2017], Goedeme and Janssens [2020], and Lucas et al. [2021] for more recent classifications).

Several disparate factors lie under the heading of expected benefits. The most obvious is the utility value of the transfer itself, whether cash or in kind. There will be individual heterogeneity in that value. Because additional decisions such as labor supply, savings, education, and other factors may accompany participation, the utility of all variables together constitutes the basic attractiveness of the program. Work requirements and other conditionality factors should also be included because they will affect the utility of participation. In a dynamic model, transitory declines in income or in other circumstances may reduce the gain to participation looking ahead over multiple periods.

The use of expected utility is intended to encompass what are often considered different factors. On one hand, there is uncertainty in both application and recertification decisions in the likelihood of a positive outcome, and expected utility should be the integral over the distribution of that uncertainty. That uncertainty may arise either because the individual is uncertain about the eligibility rules and the benefit formula, even though they are in fact definite, or because program operators themselves make errors in their screening procedures (either type I or type II; see

below), in which case the uncertainty is not reducible by the individual even by acquisition of additional information (and individual expectations may be biased). In either case, risk-averse individuals will be discouraged from applying. Program operator discretion in applying eligibility and benefit rules is another source of uncertainty. On the other hand, the expectation terminology here is also intended to capture lack of information about the individual's eligibility. Uncertainty is a form of information, but in many cases the program itself is not salient enough in the individual's awareness that traditional calculations of expected utility are even made. In the extreme, degenerate case where the individual is not aware of the existence of the program, all terms in the calculation can be considered to be zero, but this is rare in practice. It should also be noted that low-income individuals may suffer from cognitive barriers in assessing the benefits – as well as the costs below – in making decisions about application, as discussed by Bertrand et al. (2006) and Van Mechelen and Janssens (2017) (Bertrand et al. [2006] also have a discussion of uncertainty, lack of knowledge, and participation costs expressed in the framework of behavioral economics).

Stigma of program receipt is here included in the benefit term (with a negative sign) although it is often included in the cost term. The stigma of receipt can be of several different types. In one, the individual internalizes the lack of self-esteem from receiving benefits, independent of whether receipt is known to others or how many other individuals in the population are also recipients (Moffitt 1983). In another, the stigma only occurs if the individual's recipiency is known to others and if this is a source of disutility. In yet another, the individual's stigma is a function of how many others in the population also receive benefits, which leads to a social interaction model with the equilibrium conditions needed for stability (see Stuber and Schlesinger [2006] and Mood [2006], who suggest that stigma is inversely related to how high the income cutoff rate for the program is, relating it to the larger suggestion that stigma should be less in universal programs than in means-tested programs).

On the cost side, the cost term captures the time, money, and other costs of application and participation (Herd and Moynihan 2018). These costs are a function of the way application and participation are required by the program, and that involves the amount of paperwork, supplying documentation for income and family structure verification, travel and meeting time required, and similar considerations (language barriers, inability to understand paper forms, and other practical considerations all fall into this category). Significant time costs may reduce time spent working, and the wage rate the individual can command would consequently be a factor. The time costs are often termed "hassle," which is intended to capture the disutility of time spent applying and complying with the possibly multiple and myriad procedures required by the program. The expectation terminology is again intended to represent the importance of uncertainty and lack of information on perceived costs. Costs may also be a function of the number of others in the population who already participate in the program, for those costs can be reduced if others in the individual's network are already program recipients (Bertrand et al. 2000).

On the program operator side, establishing eligibility and calculating benefits requires resources and even a well-meaning program will not spend the necessary resources to make those determinations completely without error. Random error will result in both type I and type II errors, with some individuals ruled ineligible even though they are in fact eligible (type I), and others ruled eligible even though they are in fact ineligible (type II) (see Kleven and Kopczuk 2011, who follow on an earlier literature on type I and type II errors in disability programs [Diamond and Sheshinski 1995: Parsons 1996]). The political and administrative authorities responsible for the program will explicitly or implicitly set these error rates by their decisions on both the total resources devoted to administration, the way they are spent, the amount of discretion allowed to caseworkers, and on possibly political considerations on how large they wish to allow the error rate of either type to be (Herd and Moynihan [2018] emphasize the political and ideological motivations of many US government entities in imposing costs to keep caseloads low and review the political and policy history of administrative burden in several major US programs).

The reasons for incomplete take-up of benefits operated through income tax systems are rather different than those operated through more conventional program applications. In tax benefit (credit) programs, stigma and program operator error are presumably less important than information and application costs, but the costs are mostly those in filing taxes themselves than in taking up the benefit after having filed. Some countries are better than others at assisting low-income individuals to file their taxes, including countries where the tax authorities prepare a sample return themselves or otherwise provide detailed assistance to individuals. The USA is more laissez-faire in this regard, mostly relying on low-income families to acquire information themselves and to find tax preparers for assistance on their own which, combined with the lack of a national registry where low-income families can be separately identified, leads many not to file (the US tax authorities do offer free filing assistance but it is little used [Goldin et al. 2022]).

An algebraic formulation of the static framework can be written as follows:

$$V_1 = \left[U\left(H_{\text{on}},\ O_{\text{on}};B,\ X,\ \theta\right)\quad U'(C;X,\ \emptyset)\right]\quad \left[U\left(H_{\text{off}},\ O_{\text{off}};X,\ \theta\right)\right] \tag{1}$$

$$V_2 = D[L;X,\delta \tag{2}$$

$$P = 1\ \text{ if }\ V_1 + \varepsilon_1(I_1)\quad 0\ \text{ and }\ V_2 + \varepsilon_2(I_2)\quad 0 \tag{3}$$

$$P = 0\ \text{ otherwise} \tag{4}$$

where V_1 and V_2 represent the value to the individual of applying for the program and the value to the program operator to having the individual on the program, respectively; U is the direct utility of work and consumption choices and U' is the utility losses from applying; H^* and O^* are respective optimal choices of hours of work and other utility-produced commodities if on and off the program; B is the potential benefit; X is a vector of other exogenous individual characteristics; θ is a vector of preference parameters; C is a vector of time and money costs (the budget

constraint is implicit in this function); ϕ is a vector of parameters affecting costs; L is a vector of eligibility characteristics; δ is a vector of parameters summarizing program operator preferences; and P is a binary variable indicating that the individual is a recipient. In Eqs. (3) and (4), ε_1 and ε_2 are individual and program operator errors, which are a function of the information set (I) each possesses. The individual will be observed to be a participant if both the individual wishes to be a recipient and the program operator allows the individual to be a recipient (after error) (this is known as a double-hurdle model in econometrics). The individual preference parameters are heterogeneous in the population which will lead to different decisions by observably identical individuals. The model captures monetary and leisure gains from participation, lack of information and consequent error on both the individual and operator side, time and money costs of applying, and stigma (utility) costs.

Chan and Moffitt (2018) have a simpler version of this model. One omission from the model is that operator error can itself affect the expected utility of applying; this is not represented. Kleven and Kopczuk (2011) model the application decision as explicitly a function of the probability of being accepted. This model also does not capture social interactions across individuals in the population whose recipiency outcomes would affect each other's preferences. That would require an extra equation requiring an equilibrium condition establishing consistency of individual decisions and aggregate decisions.

This model portrays the individual decision in detail, but the program operator decisions – on B, L, X, some elements of C, δ, and the distribution of ε_2 – are treated as exogenous. Modeling the program choices of those variables would require a model of program operator behavior and, more generally, a model of the objective function used by the government which is presumably optimized over those parameters. Setting the eligibility parameters determines the population aimed to be served which, together with the benefit level, determines the primary expected cost of the program. Given these, most of the literature assumes that the government objective function is to get the take-up rate as close to 100% as possible, but government agencies presumably consider the costs of doing that. The costs C for most programs are those required for verification of eligibility, and this can be onerous if time-consuming and cumbersome efforts are made to verify if income, family structure, marital status, and other variables are undertaken. The direct labor and capital costs of that can be nontrivial, and many government agencies may not be willing to spend more than a certain amount of the government budget on eligibility verification. Reducing the variance of the error is also costly and agencies may consequently be willing to go only so far in doing so. In fact, reducing the variance of the error is likely to increase C because even more time and money must be spent to determine true need as defined by the eligibility conditions. Moreover, the government may wish to limit expenditures on a program to a given level for political and budgetary reasons and may intentionally allow type I and type II errors to be high to do so, or may not reduce C beyond a certain level for the same reason. They may also, more directly, simply ration slots in the program to likewise limit expenditures and create waiting lists (although how the government chooses the level of the subsidy and the number of slots simultaneously is unclear).

The existence of incomplete take-up naturally raises the question of who does not participate. Evidence on this issue is provided in the next section, but the simple model above is confirmed in many respects. For example, there is a positive correlation between take-up and potential benefit levels and a negative correlation with earning power off welfare (although much of this evidence does not distinguish the effects conditional on eligibility and on eligibility itself). However, with need defined as income if off welfare, the correlation of take-up with need will also depend on the correlation of need with C and I. If need is independent of those variables, then those who take-up the program will, on average, be those with greater need. This case has been used by Nichols and Zeckhauser (1982) to argue that the presence of costs induces the less needy to not apply, which saves government funds that can then be used to pay higher benefits to those in greater need, who have a higher probability of ending up as recipients. But if those in greater need experience greater costs of application or have less information than those in lesser need, those in more need may be less likely to participate. It is the joint distribution of all the variables in Eq. (1) (and Eq. [2]) that determines who takes up and who does not (see Finkelstein and Notowidigdo [2019] for a formal model).

Empirical Evidence on Reasons for Incomplete Take-Up

There is no general answer to the question of whether incomplete take-up is more a result of time and money costs, information, stigma, small income or utility gains, or program operator error. Every program is different in terms of all those factors and therefore the answer must be program specific. A number of studies which have examined these issues for particular programs are reviewed.

As noted in the introduction, this review focuses on means-tested programs rather than social insurance programs. With some exceptions, it also mainly reviews work since 2000. Remler and Glied (2003) has a review of mostly pre-2000 studies and Finn and Goodship (2014) have a review of many studies in the literature and their findings. It should also be noted that there are literatures in many countries estimating the effects of program features (benefit levels and eligibility characteristics) and program reforms on participation rates and caseloads, with participation rates defined as the fraction of those in a particular population (e.g., low education or low income) who are enrolled and receive benefits (Moffitt [2016] contains surveys of these literatures for major US programs). That literature is not reviewed here because these studies do not study take-up as it is defined here, for they do not attempt to estimate changes in participation resulting from changes in eligibility distinct from changes in participation conditional on eligibility.

A number of studies have conducted interviews with eligible families which directly ask the reason for nonparticipation. Eurofound (2015) reported the results of surveys in several countries asking eligible nonrecipients why they were not participating. The most common reason given was "lack of knowledge," corresponding to an information problem, but large percentages also reported "do not need the benefit, can get along without it," signaling that income off welfare was

sufficient to meet their needs. But another large percent reported application "would take too much time," "offices are too far way," and similar application and participation cost factors. Many also reported stigma-related reasons, both internal ("it would feel like begging") and external ("it would not be good if participation were known around the neighborhood"). Gustafsson (2002) found in a survey in Sweden that application would be more likely if more others were also on the program, making it more acceptable to be a recipient. Daponte et al. (1999) asked a small sample of low-income families in one US city who were seemingly eligible for the US SNAP program but were not recipients why they had not applied. The majority said that applying was "too much hassle" and "not worth it," and very few cited stigma-related reasons. Stuber and Kronebusch (2004) and Stuber and Schlesinger (2006) asked questions about stigma to eligible nonparticipants in the US TANF and Medicaid programs and found stigma to be an important reason for non-take-up.

Turning to multivariate studies of the factors affecting take-up, there is a vast literature on the determinants of participation in social programs as a function of program parameters and individual characteristics. This literature almost always shows that potential benefits and off-the-program earnings (e.g., represented by the potential wage rate in the labor market) have positive and negative effects, respectively, on the probability of program participation. However, most of this literature does not specifically examine the impact on take-up conditional on eligibility, and hence is not directly relevant to the topic of this review. But there are some studies examining the effect of benefit levels and alternative earnings on take-up among eligibles. Almost all show positive effect of potential benefits on take-up (Bargain et al. (2007); Bruckmeier and Wiemers 2012; Daponte et al. (1999); Finn and Goodship (2014); Kayser and Frick (2000); Riphahn (2001); Whelan (2010); and many others). Some studies also calculate benefit or expenditure take-up rates, defined as the fraction of potential benefits that are taken up. These studies typically show higher benefit take-up rates than participation take-up rates, implying higher participation take-up among those with higher benefits (Finn and Goodship 2014; Fuchs et al. 2020; HM Revenue and Customs 2016; U.S. Department of Agriculture 2022). Many studies also show lower take-up rates among those with more earnings and higher take-up rates among the unemployed, suggesting the same role of standard economic factors (e.g., Kenney et al. [2012]).

Notwithstanding this evidence, studies directly examining the differences in characteristics of eligibles who take up programs with those who do not show a variety of results. Falk (2017) showed that the fraction of families who did not take up the TANF program has changed over time, with a greater and greater percentage of those not taking up the program composed of those in greatest need – not working, without earnings, and in deep poverty. Kenney et al. (2012) found that Medicaid take-up rose with family income for the childless though falling, as expected, with income among parents. Tempelman and Houkes-Hommes (2016) found that take-up in a Dutch health care allowance program was generally negatively related to income but that the very lowest income households had lower take-up rates than those with slightly higher incomes. Gray (2019) showed that eligibles who did not recertify for the US SNAP program were not any better off in terms of potential earnings than

those who did. Christensen et al. (2020) review a body of evidence suggesting that those with cognitive impairments, who are among the most needy, are more likely to be affected by application and participation barriers (Herd and Moynihan [2018] have an extended discussion of related studies on who is most affected by administrative costs).

In addition to these studies, there is evidence from a number of interventions and policy reforms that those who join a program because of the intervention or reform are not always the more needy and are often the less needy. These studies, which are reviewed below, only provide information on the marginal population of new enrollees induced to join by the intervention or reform, and hence are not necessarily the same as differences between the initial populations of recipients and eligible nonrecipients.

On application and participation costs, there are many studies suggesting their importance. Riphahn (2001) found a negative association of application costs and participation in German social assistance. Kopczuk and Pop-Eleches (2007) found that areas in the USA which began offering electronic tax filing had higher levels of EITC take-up than those who required traditional paper copies of tax returns. Kleven and Kopczuk (2011) cite several studies empirically documenting those costs, which the authors call "complexity." Herd et al. (2013) show that reductions in the burdens of applying for the US Medicaid program in one state increased participation. Rossin-Slater (2013) showed that geographic access to clinics for the US Women, Infants, and Children (WIC) program increases benefit take-up. Fuchs et al. (2020) found that an Austrian reform that included simplified application procedures (among other reforms) led to an increase in program take-up.

In the USA, more work (at least for means-tested programs) has been conducted on the SNAP program than on others. In the 2000s, the federal government allowed states to adopt policies to reduce application costs, including online application and management, electronic debit cards, simplified reporting, and longer recertification intervals. Cross-state comparisons indicate that these policies increased participation (Dickert-Conlin et al. 2021; Ganong and Liebman 2018). Gray (2019) found that the introduction of an online management program in one state reduced program exit rates. Considerable work has been done on recertification per se. Gray (2019) also found that large numbers of eligible families did not recertify for the US SNAP program because of the paperwork burdens involved in recertification while Ribar et al. (2008) found that longer recertification intervals increased SNAP participation. Homonoff and Somerville (2021) examine recertification in the SNAP program, employing assumed random variables affecting the time of recertification to indirectly assess variation in participation costs because later recertification times leave less time for resolution of the case. The authors find that those with later recertification times are 22% less likely to reenroll and that the marginal disenrollee is as needy as the average participant, contrary to the suggestion that less needy individuals are less likely to reenroll. The study suggests that inattention and lack of awareness of the timing issues may be responsible for the results.

Lack of information has also been often found to play a role in incomplete take-up. Daponte et al. (1999) found that the information about eligibility that families

have is endogenous, because those with higher potential benefits are more likely to spend the time to acquire information than families whose potential benefits are low (also noted by Remler and Glied [2003]). Aizer (2007) found that an outreach program which provided more information on the US Medicaid program with a hotline (and application assistance) increased program take-up. In the SNAP program, Dickert-Conlin et al. (2021) found that state-level outreach and media campaigns in the SNAP program increased participation.

In general, stigma is the most difficult to identify if it is considered as an internalized aspect of self-esteem. In the economics literature, Moffitt (1983) introduced the term but made no attempt to distinguish it from the other sources of incomplete take-up and, in fact, did not estimate eligibility per se. In fact, in most work, stigma is just identified as a residual after other identifiable mechanisms are accounted for.

Something of an exception occurs in the models of social norms where stigma is a function of how many others in an individual's area or network are also on welfare, with the presumption that stigma is reduced, the more others are on welfare (Besley and Coate 1992; Lindbeck et al. 1999). However, an association between individual participation and group participation could be a result of information sharing as well as stigma. Bertrand et al. (2000) conduct a similar study using language differences to proxy networks, finding that those on welfare in an individual's neighborhood but speaking the same language had an effect on the individual's welfare participation. But the authors explicitly say that the effect of networks working through information and through social norms cannot be distinguished with such methods. Hümbelin (2019) argues that a correlation of recipiency with whether areas in Switzerland are more German (conservative) or French (liberal), and whether the political party is conservative or liberal, reflects social norms.

In the area of operator error, there is necessarily little information on how often program administrators make error because that would require measuring that error. One exception was discussed by Moffitt and Zahn (2022), who reported that the US federal government "audited" state decisions on eligibility determinations for one transfer program (Aid to Families with Dependent Children) in the 1980s and 1990s, and published error rates on mistakes states had made in incorrectly denying eligibility. Error rates in incorrectly denying eligibility ranged across the states from 0.3% to 4.7%, in improperly denying appeals from 0.4% to 5.8%, and in denying eligibility for "procedural reasons" (usually meaning failure to file proper paperwork) from 8.9% to 34.6%. The authors found the error rates to be correlated with the political parties in the state legislatures and governships, consistent with political explanations for the errors (for work in US social work and public administration journals documenting bureaucratic barriers to participation, see Handler and Hollingsworth [1971], Piliavin et al. [1979], Brodkin and Lipsky [1983], Lipsky [1984], and Herd and Moynihan [2018], and Heinrich [2016] for a study in South Africa).

All of the studies thus far discussed have used naturally occurring variation for identification of the impact of the various factors. There is also a literature on testing interventions, most often with randomization methods, which are intended to

address one of the factors that might be limiting take-up. Almost all these interventions test the impact of reducing participation or application costs, or improving information. These interventions will identify factors affecting take-up of those on the margin of participation and not inframarginal participants and nonparticipants. Finn and Goodship (2014) have a review of efforts by the central and local governments in the UK to increase take-up and their impacts and Eurofound (2015) has a review of efforts in other countries in Europe to increase take-up, although it is unclear how many of these efforts were evaluated with experimental methods. Rea and Hyslop (2022) discuss a directed intervention with a comparison group constructed to satisfy difference-in-difference assumptions to improve the likelihood of unbiased program impact estimates.

Among information interventions, Daponte et al. (1999) conducted a randomized controlled trial (RCT) on a sample of low-income families in one US city who were seemingly eligible for the US SNAP program but not recipients, offering the treatment group information on their eligibility and information on how to apply. The authors found a significant positive effect on take-up from the experiment. Finkelstein and Notowidigdo (2019) selected a sample of individuals 60 and older in one US state (Pennsylvania) who were enrolled in Medicaid, the health insurance program for low-income households, but who were not on SNAP but likely eligible for it. The population of Medicaid participants necessarily is likely to be in poorer health than the general population of 60-year-olds and hence the results might be special to that population. Random samples were assigned to a control group, a treatment group provided with a simple mail notification of possible SNAP eligibility, and a treatment group with information plus an offer to get assistance in applying (the second therefore was a cost reduction, not an information, intervention). The first treatment group increased applications by 5 percentage points over the control group and the second treatment group increased applications by an additional 6 percentage points, but those who took advantage of the treatment appeared to be less needy than those did not. This study suggests that both information and application costs are important, at least to those on the margin of participating, but that increasing information and lowering costs has unfavorable targeting effects. Hermes et al. (2021) conducted a similar information-plus-assistance RCT for child care program participation in Germany, finding that assistance with application was more powerful than information alone, and that positive impacts were larger among more disadvantaged families.

There are a number of studies of interventions which take their cue from behavioral economics, which emphasizes the importance of individual perceptions and mental representations of the world, the importance of context in making decisions, the role of psychological and cognitive influences, and similar factors that lead to routine biases in decision-making (Mullainathan and Shafir [2013]). Bertrand et al. (2006) describe the same informational and hassle factors described above in affecting benefit take-up, along with procrastination. Van Mechelen and Janssens (2017) review the literature and find that cognitive biases and behavioral factors play a large role in non-take-up. The Manpower Demonstration Research Corporation (MDRC) also mounted a behavioral economics project to partner with state social

program administrators to test ways to encourage take-up. Called the Behavioral Interventions to Advance Self-Sufficiency project, MDRC collaborated with 15 state and local agencies to apply the principles of behavioral economics to their child support, child care, and work support programs. The interventions involved an initial phase of identifying bottlenecks and barriers in the application process, followed by a search for low-cost and inexpensive ways to reduce those bottlenecks and barriers by simplifying forms, clarifying forms, and instructions in simpler language, using simple postcard reminders for appointment and form requirements, and a number of similar approaches. The results were generally successful both in application outcomes, but also in terms of giving program administrators tools to analyze problems in their own programs and to understand how to address those problems in a systematic fashion (MDRC 2022).

In this same category are a number of experiments in the USA on increasing take-up of the EITC, a tax credit that requires filing tax returns and claiming the credit. Only tax filing units with earnings are eligible. These experiments are predominantly those with some type of "nudge," which means a small effort to increase information, encourage filing, offer assistance, or, in some cases, to reduce stigma. The results from these studies are mixed. Bhargava and Manoli (2015) found a positive effect on EITC take-up in response to a variety of letters mailed to seemingly eligible households who had not claimed the credit, but a drawback of the study was that only those who had a history of filing taxes were included. Guyton et al. (2017) and Goldin et al. (2022) tested similar postcard-style mailings but on a larger sample of eligibles (not just those who had filed a return before) and found positive but very small effects on take-up. And Linos et al. (2020), testing a large variety of mailings, aimed at increasing information, offering assistance, and reducing stigma to seeming eligibles on the SNAP program who were not tax filers and had no effect on EITC take-up.

In Europe, Chareyron et al. (2018), also appealing to nudge theories, conducted an RCT aimed at the recertification process of French social assistance, with the treatment providing additional information to current recipients who needed to attend a counseling interview to recertify. The results showed very little, if any, effect on average, but particular subgroups (youth and rural families) responded positively, perhaps being particularly lacking in information.

Lessons

The diversity of empirical studies makes drawing lessons difficult. However, a few general lessons seem to be pertinent.

One is the general principle that programs which can be administered through tax authorities have a better chance of reaching eligibles, although it is no guarantee. Countries which have good administrative records on income and other eligibility and benefit characteristics already available from other collection systems improve upon the capability of the authorities to make eligibility determination less onerous. Countries which have the capability of operating benefit and tax credit programs on a

within-year basis are also more capable of delivering benefits on short-term bases when low-income individuals often need them the most to meet short-term needs.

A second is that take-up rates are higher among those who are already connected to the benefit system in some other way. The information-increasing/burden-reducing intervention in SNAP had positive effects on take-up among those already beneficiaries of a different program. Nudges from tax authorities appear to have more impact when sent to individuals who have already filed tax returns in the past. This suggests that outreach to nonparticipating ineligibles might start with those who are already recipients of other programs and who are both likely to be more amenable to participation as well as being easier to contact since they are already in government administrative systems. Other government administrative data bases, including those not specifically dealing with benefit programs, may be available to identify likely nonparticipating eligibles.

A third, corollary of the second, is that families who are completely disconnected to any program or administrative system are the hardest to reach. General postings of announcements or mass mailings of letters with nudges or other low-cost interventions may have little or no effect in increasing take-up in this population. The SNAP program in the USA was somewhat successful in periodic publicity campaigns to advertise program availability and to encourage application. These efforts would necessarily be more costly than cheap nudges.

Fourth, the evidence on the administrative burden of complex eligibility and benefit determination is very strong. To some degree, the burden can be reduced by simplification of application and recertification forms, and by paying due attention to the education level of the recipient when choosing the language used in the forms. However, errors in eligibility and benefit determination can result from oversimplification. More fundamental reductions in administrative burden are likely to require additional government expenditure on staff and IT systems to assist applicants and recipients in their compliance in a timely fashion. In some US states, small government offices are located in low-income neighborhoods to assist applicants and current recipients in completing forms online, scanning pay stubs and other documents, and answering questions about requirements. The staff at these centers are not highly trained eligibility technicians but lower-level staff trained just to assist individuals with the functions just mentioned.

Relatedly, increased use of “one-stop shopping” centers where applicants and participants can obtain assistance with application and compliance for multiple programs could reduce respondent burden and possibly result in cost reductions to the government if single locations and shared staffing is possible. The use of single agency like that in Australia is an example of this organizational setup. The aforementioned practice in the USA of neighborhood-based offices is another example, for typically those offices handle families needing assistance for multiple programs.

Summary

This review has surveyed estimates of take-up of social benefits around the world, discussed alternative theories of reasons for incomplete take-up, and surveyed the empirical evidence on the importance of different factors. Calculation of take-up rates is usually difficult because the available data to accurately estimate eligibility are often lacking, especially given the complexity of most eligibility rules, and data errors in measures of eligibility variables and of recipiency reduce the accuracy of the calculations. Most take-up estimates that have been conducted are from high-income countries and show a wide range of estimates, from take-up rates around 20–30% for many programs but over 80% for others. While explaining the reasons for the difference is difficult, it appears that many of the high estimates occur in countries and programs where they are administered by fiscal authorities rather than local welfare offices and where extensive administrative records on income and other variables on all or most of the individuals in the country are already held by the government.

Theories of incomplete take-up include those involving low monetary or utility gains, stigma of receipt, monetary and nonmonetary costs of program participation, imperfect information, administrative barriers, and mismeasurement. A formal economic model of take-up is proposed which shows that the types of those who take-up and those who do not is determined by the joint distribution of gains and losses, and what types of individuals faced the largest administrative burden of participation and largest information deficits.

There is a large body of evidence showing the importance of benefit gain and earnings losses from take-up but a smaller body of evidence on other factors. That literature shows that administrative barriers and costs, lack of information, and stigma all appear to be important for different programs. Relatively successful interventions in reducing administrative costs and improve information have been conducted, but many others, particularly those testing the impact of small nudges on take-up, often have very little impact. While there are no easy solutions to the problem of incomplete take-up, policies to at least lessen the problem are available, although generally not without increased government expenditure.

Cross-References

- ▶ Behavioral Household Economics
- ▶ Inequality and Social Policy
- ▶ Social Norms and the Labor Market

Acknowledgments Responsible Section Editor: Enrico Rettore.

The authors would like to thank Michael Baker, Samuel Bentolila, Peter Germanis, Catherine Haeck, Dean Hyslop, Pierre Koning, Claire Leroy, Kjell Salvanes, Mark Stabile, and Laura Zimmermann for assistance with the country take-up and coverage rates, and Shuaizhang Feng, Claire Leroy, David Rea, and the participants of a presentation at the New Zealand Ministry of Social Development for comments.

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