Chapter 9

The Form of Transfers: Cash, In-Kind, Vouchers

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1. Introduction

When designing social safety net programs, a key question is what form transfers to beneficiaries should take. The longstanding "textbook" view in economics has been that cash should be the preferred form of transfer. Although unconditional cash transfers have garnered much recent academic and policy interest, in-kind and voucher programs remain the predominant form of social protection throughout much of the world, particularly for goods and services such as food, fuel, health, and education. In addition, stated beneficiary preferences from a variety of countries contradict the view that cash is necessarily the preferred form of transfer. For example, in a survey of 1200 rural Indian households across nine

states, Khera (2014) finds that two-thirds of households express a preference for food over cash transfers.[1]

In this chapter, we examine differences across cash, voucher, and in-kind transfer programs from the beneficiary and planner perspectives. We both explore tradeoffs across these transfers and discuss considerations that could improve the effectiveness of a given type of transfer. We highlight illustrative empirical evidence throughout but do not attempt to provide an exhaustive review of the literature.

It is important to note that the boundaries delineating these forms of transfers are not always clear, and even the terms themselves are used in different ways in the literature. In addition, a given form of transfer may be implemented in myriad ways in practice. A highly restrictive voucher, for example, will have many of the characteristics of an in-kind transfer, whereas a less restrictive voucher will begin to approximate a cash transfer. For the purposes of this chapter, we define these transfer modalities as follows, highlighting critical differentiating characteristics:

[1] See also Hidrobo et al. (2014) and Hirvonen and Hoddinott (2021) for evidence from Ecuador and Ethiopia, respectively.

Cash Transfers. Cash transfers do not restrict the goods and services on which the transfer can be spent. We assume that cash transfers are not indexed to local conditions and focus on unconditional cash transfers (rather than conditional transfers which require beneficiaries to engage in certain behaviors--such as enrolling children in school--in order to be eligible). Note that the form of transfer need not be literal cash: mobile money is a common feature of many cash transfer programs.

Vouchers. Vouchers are transfers that allow beneficiaries to purchase up to a fixed cash amount of a restricted set of goods (which we denote as "monetary vouchers"), or, less commonly, a given quantity of a restricted set of goods ("quantity vouchers"). We assume here that vouchers are used for purchase in the private market and that monetary vouchers are not indexed to local conditions.

In-Kind Transfers. In-kind transfers have two key features. First, they are transfers in the form of a consumption good. Second, the government engages in the provision of goods to local communities, thereby increasing local supply. This differentiates our definition of in-kind transfers from vouchers or price subsidies. We do not, however, assume that such transfers necessarily provide free distribution. For example, the Public

Distribution System in India allows beneficiaries to purchase commodities at below market rates.

These definitions lead to the following matrix:

TABLE 1: CHARACTERISTICS OF TRANSFER PROGRAMS

	Cash	Vouchers (Monetary)	Vouchers (Quantity)	In-Kind
Restrictions on consumption	No	Yes	Yes	Yes
Has real (vs. nominal) value	No	No	Yes	Yes
Directly increases local supply	No	No	No	Yes

We stress again that in practice, these terms may be used in different ways in the literature and policy debates. In addition, not all programs must fit the definitions above. For example, cash transfers could theoretically be price-indexed, giving them real rather than nominal value. Ultimately, it is the underlying *characteristics* of the transfer program that will determine its effects rather than its label, and our goal in Table 1 is to provide an organizing framework in which

we explore the implications of these key characteristics.[2] In addition to these factors, the way in which programs are implemented on the ground is often critical.

Thinking about transfers in terms of characteristics and implementation is important because the question is often not just which type of transfer should be implemented but also how to improve the effectiveness of a given form of transfer. Despite the recent surge in interest in cash transfers, in-kind transfers and vouchers are probably here to stay: as pointed out by Alderman et al (2017), in-kind transfer systems have existed since antiquity and are proving remarkably persistent--with some of them growing and becoming better administered in recent decades.

The framework in Table 1 grounds our discussion in Sections 2-4 of the chapter, in which we discuss differences across transfer program characteristics. We begin by assuming local shocks to supply and demand do not affect relative prices. In this case, the key differentiating factor between cash and non-cash transfers is the first row of the table: cash transfers are unrestricted whereas in-kind transfers and vouchers place restrictions on the form of consumption. When local prices are

[2] In this review, we focus on programs that provide direct transfers to beneficiaries rather than universal in-kind benefits, such as spending on health care systems and schools.

affected by local shocks, nominal and real transfers will have asymmetric effects (row 2) and the form of transfers themselves can potentially affect local prices (row 3). In Section 5, we discuss the importance of program administration and implementation. Section 6 concludes by outlining open areas of research.

2. Restrictions on the Consumption Bundle

We begin with the neoclassical framework which underlies the textbook economic result that cash transfers will always be weakly preferred to equal value non-cash transfers. In this framework, beneficiaries will be indifferent between cash and non-cash transfers if the non-cash transfer is inframarginal, i.e., the amount of the restricted good transferred in-kind or purchasable by voucher is less than or equal to the optimal level of consumption of that good under an equal value cash transfer. If instead the transfer is marginal, i.e., the amount of the restricted good exceeds the optimal level of consumption under cash, the non-cash transfer distorts the consumption bundle and will be welfare reducing for the beneficiary. We then turn to behavioral models under which even inframarginal transfers can have differential effects on consumption bundles. Finally, we discuss reasons why policymaker preferences may differ from beneficiary preferences.

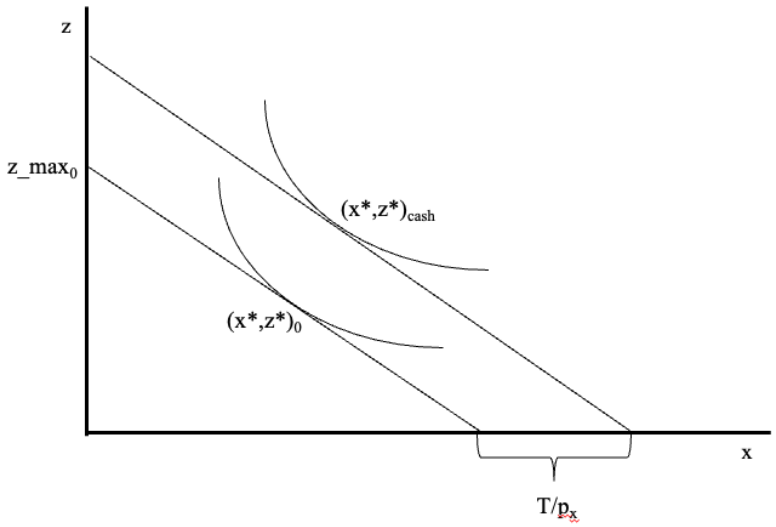
2.1 Neoclassical Benchmark

Consider an individual choosing between consumption of a given good, x, and all other goods (z). Assuming that the transfer does not change relative prices in the market (an assumption to which we return below), a cash transfer of $T will result in a parallel shift to the budget constraint. Define $(x^*, z^*)_{cash}$ as the individual's optimal consumption bundle under this cash transfer (Figure 1a).

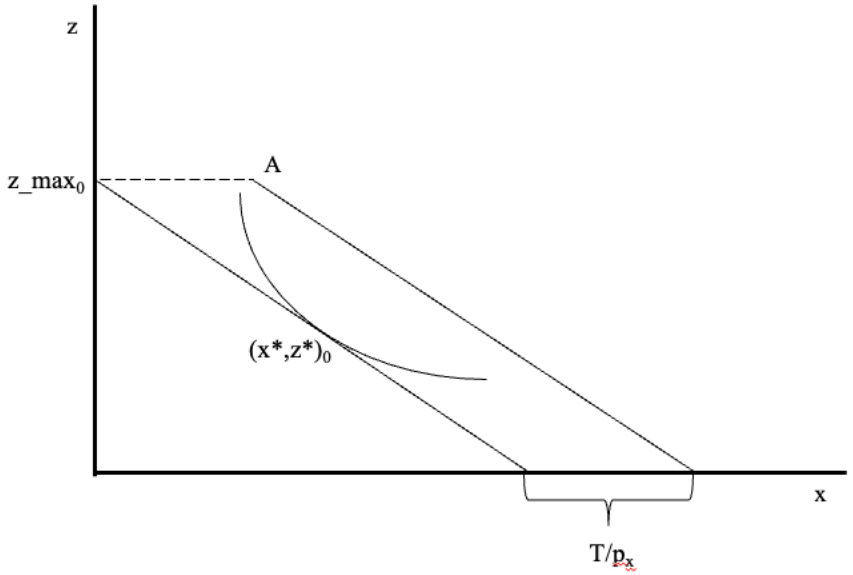
An equal value in-kind transfer of T/p_x will shift the budget constraint in a parallel but truncated way: the transfer allows increased consumption of x but does not allow the beneficiary to increase their maximum consumption of z (Figure 1b). This budget constraint would also arise from a monetary voucher of T or a quantity voucher T/p_x.

[FIGURE 1: EFFECT OF TRANSFERS ON THE BUDGET CONSTRAINT]

[1A: Unrestricted Cash Transfer]



[1B: Restricted Cash Transfer]



There are now two possible cases. If $(x^*,z^*)_{cash}$ lies at or to the right of point A in Figure 1b, then the transfer is inframarginal and the beneficiary will be indifferent between cash and non-cash (or more precisely, between unrestricted and restricted transfers), since they can achieve the same consumption bundle under either form of transfer. If, however, $(x^*,z^*)_{cash}$ lies at or to the left of point A, the beneficiary's preferred consumption bundle is no longer achievable and they will locate at point A. In this case, the non-cash transfer is marginal, distorting the consumption bundle and resulting in lower utility for the beneficiary than the cash transfer.

The larger the transfer, the more likely the transfer is to be marginal for a given set of preferences. Holding the transfer amount fixed, whether non-cash transfers are marginal and therefore distortionary will depend on the income expansion path, dx^*/dy. Intuitively, the probability that the transfer is marginal will be decreasing in x^*_0 (beneficiaries can more easily crowd out existing spending on x) and in the marginal propensity to consume x from income (the income elasticity of x).

Until now, we have assumed that beneficiaries cannot sell in-kind goods or vouchers. If there were a frictionless resale market, in-kind and voucher programs would be equivalent to cash from the beneficiary perspective. In practice, transfers may be restricted such that they can only be used by the intended

beneficiary; it may be costly to find buyers; and beneficiaries may face risks if resale is illegal. These frictions will again distort consumption away from $(x^*, z^*)_{cash}$.

These potential distortions to the consumption bundle are the main rationale against in-kind or voucher programs in the textbook model. But how empirically relevant are such distortions in practice? To shed light on this question, we turn to evidence from two of the largest in-kind transfer programs in the world: the Public Distribution System (PDS) in India and the Rastra program in Indonesia. The PDS provides quotas of food and fuel to households at fixed, below market prices. Gadenne et al. (2023) demonstrate that between 2003-2012, rice quotas provided through the PDS were inframarginal for 93% of households (see also Gadenne 2020). This result is in line with Banerjee et al. (2023) who find that rice transfers in Indonesia are inframarginal for 97% of households.

While the marginality of transfers will of course be context specific, these empirical findings are striking and suggest that the standard drawback to restricted transfers may be true primarily in theory rather than practice for many real-world programs. One important caveat to note, however, is that the estimates above do not take into account imperfect substitutability between transferred and market goods. In many cases, the quality of in-kind transfers (for example, food

or public housing) may be lower than what households would purchase on the market. In the next subsection, we turn to behavioral models under which restricted and unrestricted transfers may result in differential effects on consumption choices and utility, even when the restricted transfers are truly inframarginal.

2.2 Behavioral Models

Standard economic theory suggests that households should treat transfers as fungible, implying that an inframarginal in-kind or voucher program will result in the same income expansion path as an equal value cash transfer. In practice, however, empirical evidence suggests that households may exhibit flypaper effects in spending, such that (dx/d_IK,V) > (dx/dY). For example, in a study of the US food assistance program SNAP, Hastings and Shapiro (2018) find that the marginal propensity to consume SNAP-eligible food from in-kind benefits is much higher than the marginal propensity to consume from cash. Banerjee et al (2023) similarly find that Indonesian households increase their egg consumption when given vouchers for eggs or rice, even though the voucher bundle is inframarginal. The form of transfer may also affect the consumption bundle in subtler ways. For example, in an RCT in Ecuador, Hidrobo et al. (2014) find that in-kind transfers have larger effects on the levels of calories consumed, while

vouchers increase diversity in caloric intake. If households exhibit such behavioral biases, then the form of transfer can affect the consumption bundle even when restrictions on transfers are not binding.

Another consideration that may generate asymmetry for inframarginal transfers is the idea that putting control over spending in the hands of beneficiaries is inherently important. Even if in-kind transfers or vouchers do not change *ex post* consumption relative to cash, providing fewer *ex ante* restrictions might give beneficiaries a greater sense of dignity or empowerment. Give Directly, a pioneer in providing unconditional cash transfers, references this idea as a core value and key rationale for cash transfers,[3] and a RCT by Shapiro (2019) finds that cash transfers increase recipients' feelings of autonomy and improve attitudes toward the implementing organization relative to non-cash transfers.

A counterpoint to the idea that beneficiaries may value the empowerment that comes from cash is that beneficiaries may not actually trust themselves with this freedom. A striking finding from Khera (2014) is that beneficiaries who preferred food transfers often stated a worry that cash "would be dissipated" quickly and potentially wastefully. Sophisticated beneficiaries with self-control problems

[3] https://www.givedirectly.org/givedirectly-values/; accessed August 8, 2023.

might therefore prefer to tie their hands through restricted transfers, and non-sophisticated beneficiaries might benefit from restrictions even if their stated preferences suggest otherwise.[4]

2.3. Planner Preferences

Both the standard neoclassical benchmark and (some) behavioral models suggest that the potential distortions to the consumption bundle from restricted transfers are (weakly) welfare reducing to beneficiaries as compared to cash. However, many in the policy community have in fact argued the exact opposite: that these distortions to the consumption bundle are in fact desirable and an argument in *favor* of restricted transfers.

One set of rationales for restricted transfers arises from the planner maximizing overall social welfare rather than just the beneficiary's utility. For example, to the extent that there are positive externalities from consumption of the restricted good, beneficiaries will underconsume relative to the social optimum. In theory, this could provide a potential rationale for restricted transfers in arenas such as

[4] Further behavioral biases are likely to be relevant when beneficiaries are asked about switching from their current transfer modality to an alternative. Hidrobo et al. (2014) randomize households in Ecuador into cash, in-kind or voucher transfers. They find that the majority of recipients in each group report preferring to receive future transfers entirely in that form (77% for the cash group; 55% for food; and 56% for vouchers), suggesting status quo bias. Endowment effects could also provide an explanation for beneficiaries currently receiving food or vouchers preferring not to switch to cash.

health and education. Another possible benefit of restricted transfers is that they may improve targeting. In a seminal paper, Nichols and Zeckhauser (1982) introduce the idea of "indicator goods": consumption goods for which low ability types have a higher optimal consumption level than high ability types at the *same* level of income. In this case, providing transfers in the form of an indicator good can improve targeting. For example, if low ability types have higher health burdens than high types, providing health care will be more distortionary for high types, thereby relaxing the incentive compatibility constraint. This can be optimal even if the low type's consumption bundle is distorted as well.[5]

Another set of rationales arises from the way in which the planner incorporates the beneficiary's own preferences into the social welfare function. In particular, under paternalistic models, the planner prefers a different consumption allocation for the beneficiary than they would choose under a cash transfer. The planner may believe that the individual is failing to maximize their "true" utility function; for example, because of the types of self-control problems discussed above. In this case, restricted transfers could be welfare maximizing for the beneficiary. Alternatively, the planner may realize that the restricted transfer is not utility

[5] Other potential examples of indicator goods are lower quality goods (if low ability types have stronger taste for such goods conditional on income) or goods that require a time input, such as queuing, to access (if low ability types have lower opportunity cost of time). However, we are not aware of existing work that empirically documents this type of targeting function of in-kind transfers.

maximizing for the beneficiary but still chooses it because the planner has a different objective function, potentially reflecting voter or donor preferences. For example, taxpayers or funders may place different weights on consumption of particular goods than recipients or worry about intra-household conflicts (see Currie and Gahvari (2008) for a more detailed discussion of this literature).

An interesting question is the extent to which these voter and donor preferences are based on incorrect beliefs about how beneficiaries would actually spend unrestricted cash transfers. The commonly stated argument that cash transfers would be "wasted" on sin goods such as alcohol, for example, has not been borne out in a growing body of empirical evidence (see Evans and Popova (2017) for a review). It seems quite possible that the political economy surrounding forms of transfer will evolve as additional evidence is generated and disseminated.

3. Real vs. Nominal Transfer Value

When markets are not well integrated, as is commonly the case in developing countries (Atkin 2013, Allen 2014), prices of commodities are subject to variation from local shocks to supply and demand. The benchmark model described above is static, which implies that the planner can always provide inframarginal cash, in-kind or voucher transfers that have equal value to the beneficiary. However, when

the price of x varies across states of the world, the planner can only set transfers that are equivalent to the beneficiary in expected value terms: the effective value of the transfer will be state dependent.

Such price risk is empirically relevant, particularly for the case of food (see, e.g., Boyd and Bellemare (2020)). The welfare consequences of price variability, however, are ambiguous: households face a tradeoff between the desire to smooth consumption and the potential for increased purchasing power from shifting consumption to low price goods or states. If households value additional income when the price of a given good is high, then they will prefer cash transfers indexed so they are increasing with respect to the price of that good. In practice, high frequency local price indexing remains challenging: prices can be difficult to observe in information-poor environments and variation may be highly localized. In such environments, in-kind transfers or quantity vouchers can provide a second best solution, since the value of the transfer increases automatically with the local price of the transferred good.

Gadenne et al. (2023) use falling below minimum calorie guidelines as a proxy for marginal utility and demonstrate that low-income households in India have higher marginal utility in high (rice) price states of the world. This indicates that these households do indeed have a demand for insurance against price risk, which

implies that (1) households would benefit from price-indexed cash transfers; and that (2) in-kind transfers (or quantity vouchers) can improve welfare relative to cash transfers in part through their insurance function. They further show that the Public Distribution System not only increases caloric intake but also reduces caloric sensitivity to prices, consistent with an insurance mechanism. It is important to note that many RCTs comparing transfer modalities may fail to capture such insurance benefits, both because they tend to focus on average outcomes and because the time horizon over which outcomes are measured is often limited.

4. Changes to Local Supply (and Demand)

Cash, in-kind and voucher programs will also differ through their general equilibrium effects on market prices. Theoretically, in-kind transfers will reduce local private prices of the transferred good x as long as they increase the local supply of x. Cash and vouchers could on the contrary increase beneficiary demand of non-inferior goods, driving up local prices. The literature that tests for such price effects find typically little to no effects on average of any of the modalities (see for example Egger et al 2022 and Attanasio and Pastorino 2020 for cash, Banerjee et al 2023 for vouchers, Gadenne et al 2023 for in-kind transfers). However, studies that focus on contexts in which the potential for price

effects is large--because the transfers are large relative to the local economy and private markets are isolated and/or uncompetitive--do find non-trivial effects. In remote villages in the Philippines, Filmer et al (2023) find large positive effects on food prices of a cash transfer, while Cunha et al (2019) report positive effects on food prices of a cash transfer, and negative effects of in-kind transfers, in less developed villages in Mexico. The evidence thus suggests that transfers' effects on private prices can be non-trivial, at least in poorer and less well integrated parts of LMICs.

Such price effects can affect the welfare consequences of transfers both by changing the distributional implications of the program and by affecting market efficiency, depending on the underlying competitive structure of the market.

4.1. General Equilibrium Price Effects: Equity

Cash, in-kind and voucher programs differ in the ways in which they provide redistribution to households through their general equilibrium effects on market prices. Such effects create winners and losers as they represent pecuniary redistribution between producers (and/or retailers) and consumers of the products whose prices are affected, regardless of whether or not they directly benefit from the transfers. This argument provides a potential rationale for in-kind transfers

(assuming they decrease market prices) in contexts in which net producers (those who produce more than they consume) are richer than net consumers, and when governments have limited capacity to redistribute via taxation (Coate et al., 1994). This prescription may not generalize to all LMICs, however, as the first condition may not always hold: poor households often produce food items at home and some may be net producers. The potential for distributional effects is more generally true of any policy that changes market prices: a decrease in the price of rice, for example, benefits households as consumers but decreases the income of those producing rice (see Besley and Kanbur, 1988 for a discussion).

Results in Filmer et al (2023), mentioned above, suggest that taking into account indirect price effects on non-beneficiary households can potentially flip the sign of transfers' effects on key outcomes. They find negative impacts of the cash transfer on average child nutrition in some villages due to the increase in food prices worsening the nutritional status of non-beneficiary children.

4.2. General Equilibrium Price Effects: Efficiency

Different transfer modalities can affect market prices differently even when private markets are perfectly competitive.[6] With imperfect competition, however, the potential for such price effects is stronger and has welfare implications beyond the distributional implications outlined above. Limited competition means local retailers can strategically ration supply of good x to keep prices high; in-kind transfers can partially undo this by bringing both supply and prices closer to their (perfectly competitive) first-best level. This improves the efficiency of private markets, thus increasing welfare relative to what could be achieved by cash transfers.

Such efficiency effects in the presence of imperfectly competitive markets were first put forward theoretically by Coate (1989). They could be policy relevant given the evidence that retail markets in LMICs are far from perfectly competitive (see Ivaldi et al 2016). The parallel with the literature on employment programs suggests this is a promising area for future research: this literature has shown that these programs increase efficiency when labor markets are imperfectly competitive (Muralidharan et al, 2023; see also chapter 11 in this volume),

[6] See Cunha et al (2019) for a discussion of how the structure of competition in private markets affects potential price effects of cash and in-kind transfers.

leading to large welfare gains. Could in-kind transfers of for example food have similar large pro-competitive effects?

There is indeed some evidence in the Cunha et al (2019) paper discussed above that the price effects of in-kind transfers in Mexico are strongest in areas with less competition between private suppliers. Also in Mexico, Jimenez-Hernandez and Seira (2021) find that the government provision of milk lowers the price of milk sold in private stores and argue that this is due to these stores' local market power.

However, the sign of these price effects is not *ex ante* unambiguous as soon as one relaxes some of the assumptions made in Coate (1989) and Coate et al (1994). In Chile, Atal et al (2023) find that the entry of public pharmacies increases prices in private pharmacies. Their argument--public providers supply lower quality goods, allowing private retailers to specialize in higher quality products and charge higher prices--could hold for in-kind transfers more generally, further complicating their potential welfare effects relative to cash transfers. More work therefore needs to be done to better understand how the structure of private markets mediates the effects of transfers on local households.

Even less is known on how the existence of these transfers could affect private market structures. In theory, public delivery of goods could lead to exit amongst

private retailers of these goods, while vouchers and cash could lead to entry by increasing overall demand, but the way transfers are implemented could lead to more subtle effects.[7] A general take-away is that large transfer systems may affect private markets beyond just price effects; these changes in private market structures may have welfare effects that compound or mitigate those of the transfers themselves.

5. Administration and Implementation

In recent years, the literature on transfer modality has drawn on the wider literatures in political economy, targeting, and program implementation to consider what factors determine the equity and efficiency properties of each modality in specific contexts. These recent studies, with their focus on program implementation nuts and bolts, "what works" for beneficiaries, and greater reliance on randomized experiments, are very much in the spirit of the "economist as plumbers" approach (Duflo, 2017) that has become widespread in development economics.

[7] In some parts of India public delivery of in-kind transfers relies on private retailers 'doubling-up' as ration shops, perhaps increasing competition in private markets, while in the Dominican Republic, Busso and Galiani (2019) report occurrences of the government limiting the number of retailers where households can redeem vouchers to ensure they capture sufficient rents.

One way of reading this literature is to realize that the neoclassical model described above (including when extended to allow for imperfectly competitive markets) essentially assumes away government imperfections: programs are perfectly implemented and no resources are ever wasted in the process. Recent papers relax this assumption and consider how program implementation constraints change transfers' effects on both beneficiaries and government finances.

5.1. Historical Origins and Political Economy

In trying to explain the structure of the current safety net (and potential for reform), it is important to understand the historical origins of transfer programs as well as the political constituencies--beyond transfer recipients themselves--who may have vested interests in these programs. The history of food transfers in the United States provides a useful illustrative example. The origins of food aid date back to the Great Depression, when the country experienced both large food surpluses and high levels of unemployment and poverty. To address these issues simultaneously, the government began purchasing surplus food commodities from farmers and distributing them to the poor. Similar dynamics are at play in other food transfer programs. While India's PDS program began as a British food

rationing program during World War II, it quickly became intertwined with agricultural support policies, such as guaranteed purchase schemes.

This aspect of in-kind transfers may help to explain their political resiliency. Any in-kind transfer program typically involves many supply chain actors who potentially benefit from the program, creating additional political constituencies that may support this form of transfer relative to a cash transfer program. These actors may also be more politically connected and influential than the direct beneficiaries of the program.

5.2. Social Costs of Provision

The earlier neoclassical literature typically pointed out that budgetary considerations likely favor cash over in-kind transfers (and probably vouchers) because organizing the delivery of goods to all parts of the country is likely to cost more than simply transferring cash or issuing vouchers. The magnitude of the differences in budgetary costs matter greatly when choosing between transfer modalities. Experimental papers with detailed information on program costs helpfully document these magnitudes and do indeed conclude that cash transfers are cheaper to implement: Margolies and Hoddinott (2015), for example, study four contexts in which households were randomly assigned to in-kind or cash

transfers and find that the latter are 2 to 4 times cheaper. However, context characteristics are likely to matter, with some in-kind transfers being perhaps surprisingly cost-effective: in Indonesia, for example, Rastra's administrative costs represent roughly 4% of total costs (Banerjee et al 2023).

It is important to note that budgetary costs alone do not necessarily capture the true social costs of provision. For example, large scale in-kind food transfer programs are often implemented together with producer subsidies and guaranteed purchase schemes. If we take these policies as given–for example, because of the types of political economy concerns discussed above–the social cost of providing in-kind transfers may be lower than the deadweight loss from tax-financed cash transfers. In addition, the government cost of providing a transfer may differ from the beneficiary valuation, making a simple comparison of budgetary costs for providing the "same transfer" misleading. For example, Shapiro (2019) finds that the majority of recipients in Kenya value in-kind transfers (agricultural extension services; poultry; agricultural inputs) more than their cash "equivalents," and these valuation gaps are large, often multiple times the cost of provision. These gaps may reflect economies of scale or missing or imperfectly competitive markets: beneficiaries simply may not be able to purchase goods such as agricultural extension services at anything close to the cost to the government to provide them.

5.3. Targeting and Access

Another program implementation constraint is targeting. The theoretical literature has focused on a specific set of targeting considerations--minimizing inclusion errors--but in practice governments are also concerned about exclusion errors: the share of intended beneficiaries that do not receive the transfer. Such errors can occur because transaction costs are too high, because eligibility verification methods fail, or because agents tasked with delivering the transfer are diverting resources away from intended beneficiaries. Intuitively, transfer modalities will affect exclusion errors differently depending in ways that are strongly context specific. Advances in electronic payment technologies, for example, have made the delivery of cash straight to poor households' bank accounts not only feasible but arguably also cheaper and more reliable than the distribution of food via in-kind transfers, while minimizing concerns about lack of financial inclusion.

One recent paper finds evidence of vastly different targeting characteristics of transfer modalities because of administrative differences in program delivery. Banerjee et al (2023) consider the experimental roll-out of a voucher alternative to Indonesia's large in-kind transfer program. They find some differences between the two along the lines predicted by the neoclassical models, but these are dwarfed by the administrative gains from the voucher alternative. Vouchers lead

to much better targeting of resources to intended beneficiaries compared to in-kind transfers, which are typically shared by a larger number of households (including many ineligible households). The total amounts transferred are the same under both modalities, but, conditional on receiving a transfer, households receive substantially more with a voucher. A likely explanation is that in-kind transfers are delivered by local agents who may choose to deviate from the intended beneficiary list, but vouchers are easier to target to beneficiaries. While some poor households are excluded from the voucher program (an increase in exclusion errors), the modality change leads to much bigger decreases in inclusion errors. Overall, the unconditional amounts received by poorer households increase with the vouchers, leading to a 20 percentage point fall in poverty rates relative to the baseline in-kind program.

Results in this paper thus point to great potential from changes in transfer modalities, but this particular set of results (vouchers leading to better outcomes than in-kind transfers) may be again context specific. Vouchers lead to program targeting that is much closer to that desired by the central government. However, this may not always be welfare increasing: in some contexts, local agents may have better information on households' needs and act on this information when deciding when to deviate from central government targeting rules (Alatas et al 2012).

Technological change also has the potential to rapidly change the trade-offs associated with different transfer modalities. This extends far beyond the much-noted advances in financial inclusion: recent progress in household identification methods and ease with which transactions can be verified by third parties can potentially transform the way all transfer modalities--not just cash--reach households. Indeed, recent work studying the effects of major identification and payment reforms in India has focused on how they affect the delivery of the country's flagship in-kind program (see Muralidharan et al 2023a). India is an example of a country where rapid changes in the governments' capacity to verify households' identity and transactions has not--perhaps not yet--led to changes in transfer modality towards cash. Interestingly, this paper cautions that program implementation matters for whether the gains from reforms that leverage technological change materialize. The introduction of biometric ID requirements in India's PDS led to more exclusion errors among the most vulnerable households, precisely because they are less able to interact with novel technologies.

5.4. Competition

A final factor we consider is the role of competition between transfer providers. While cash can, at least in theory, be transferred directly from the central

government to beneficiaries, the delivery of in-kind transfers and vouchers relies on, at the very least, a network of shops in which vouchers can be redeemed or rations received. The idea that competition between providers of publicly funded (and potentially supplied) products could lead to better welfare outcomes is not new (see for example Gaynor et al 2016) and could extend to the delivery of in-kind transfers. This could for example take the form of different agents competing for government contracts to organize the delivery of in-kind transfers. Evidence in Banerjee et al (2019) suggests this has the potential to improve beneficiaries' welfare: increasing the number of suppliers bidding for the last-mile delivery of in-kind transfers of rice in Indonesia leads to large decreases in operational costs and prices paid by households for their rice. Competition could also take the form of beneficiaries being given more choice in where to purchase their in-kind transfers or redeem their vouchers. In the Dominican Republic, Busso and Galiani (2019) experimentally increase the number of retailers where households can redeem their (nominal) vouchers; they find that higher competition leads to products purchased with vouchers that are both of lower price and higher quality.

Note that recent technological advances have made the introduction of competition in these programs feasible beyond highly controlled experimental settings, and questions regarding the effects of competition are therefore highly policy relevant. In India, the recent introduction of electronic transaction systems

for the PDS has enabled the government to relax the rule that households can only purchase their products from one assigned shop: since 2019, Indian households can use any ration shop in the country. Future evidence on this topic may yield new insights on how the structure of competition between transfers themselves affects the welfare gains from different modalities.

6. Moving Forward

The literature on transfer modalities is longstanding. However, recent advances on the research frontier and changes in the policy landscape have opened up exciting new avenues for future work. For example, recent studies have highlighted the important potential role of insurance, general equilibrium effects, and market competition, as well as the critical role "on the ground" implementation considerations can play both in choosing the form of transfer and in improving the effectiveness of a given transfer modality. On the policy front, advances in technology have transformed transfer delivery and targeting.

We conclude this handbook chapter by highlighting several promising areas of research. First, we argue there is more to be done to understand how and why beneficiaries value different types of transfers. While the standard textbook trade-off indicates that cash will be weakly preferred to vouchers and in-kind transfers,

it is not clear that the marginality of non-cash transfers is empirically relevant in many programs. It is also striking that beneficiaries often report a preference for non-cash transfers. It is possible that beneficiaries value these transfers above the cost of providing them; for example, because they provide insurance, assist with self-control problems, or allow beneficiaries access to goods that they cannot easily purchase on the private market. Better understanding the "benefit" side of different transfers in addition to their costs is critical for assessing their overall welfare implications.

Second, there is still a lot to learn on the existence and implications of general equilibrium effects of transfers on local prices. The existing literature simultaneously points to small or null effects on prices on average and large effects in some specific settings. This suggests understanding the source(s) of heterogeneous effects is a promising avenue for future research that seeks to understand how private market structures affect the returns to government policies. Relatedly, more needs to be done to determine whether transfers could affect the overall efficiency of private markets, via changing mark-ups or directly affecting the structure of competition.

Third, several elements in this chapter suggest that optimal transfer characteristics may change over the development path; transfers that are best suited to the

context of the poorest countries may not be part of the best policy mix in middle-income-countries. For example, the insurance value of in-kind transfers relative to cash highlighted in Gadenne et al (2023) hinges on households facing substantial price risk for basic necessities, spending a large share of their budget on such necessities, and not having access to alternative insurance mechanisms. These three conditions are more likely to be met in low-income-countries with poorly integrated private markets than in middle-income-countries. Recent advances in other sub-fields of development economics have shaped our understanding of how structural transformation changes the nature of jobs (Bandiera et al 2022) or the optimal tax mix (Bachas et al 2024) over the course of development. A similar investigation of how structural transformations associated with economic development change the effects of different transfer modalities--and therefore the associated policy trade-offs--could yield fruitful insights for both research and policy.

A full set of references for all Handbook chapters, including this one, can be found at this link: https://www.dropbox.com/scl/fi/9lqs2mdrawkjdrv4m648e/References-Social-Protection-Handbook.pdf?rlkey=jt0f8kute31mhdke77aoiw99d&st=kd7l8ff1&dl=0