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Background Paper prepared by

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for

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Abstract

Although still low for European standards, investments in Social Assistance (SA) transfers in Turkey have been increasing in recent years. The government is expanding access to subsidized health for individuals in the informal sector through a rapid expansion of the Green Card program. Generous non-contributory programs, such as the Green Card, may create perverse incentives for individuals to join or remain in the informal sector as they can access free services without paying taxes and/or contributions, thus potentially being able to get higher “net” labor earnings than in the formal sector. Despite the fact that the Green Card is a large and generous program offered to individuals in the informal sector, empirical analysis in this report does not find an actual impact of the program (or of its rapid expansion) on informality. The reason behind this finding is the existence of a very large differential in wages between formal and informal workers explained by differences worker’s productivity. Low-wage workers facing the possibility to move from the informal sector to the formal sector would have strong incentives to do so even if this would imply losing all SA benefits. As such, the expected monetary and job security gains of having a formal job dominate those of having an informal job even after accounting for SA transfers.

1. Introduction

The main purpose of this note is to study the incentives created by the various social assistance/insurance programs in Turkey, especially the Green Card, in the worker's choice of employment sector (formal vs. informal). SA, defined broadly, is often viewed as a factor determining labor supply choices, including whether to work formally or informally (Table 1). For instance, SA transfers and subsidized health are often given to individuals who are unemployed and/or unregistered in social security. If transfers constitute a large share of the total income received by beneficiaries (or if services provided are expensive to acquire), individuals may have incentives to not register in social security and/or to declare that they are unemployed.

Table 1: Impact of Conditional Cash Transfers (CCTs) and other SA Programs on labor market outcomes [A review of the Literature]

<i>Impact on</i>	<i>Author</i>	<i>Main Findings</i>
Children Labor Supply	Glewwe and Olinto (2004)	<i>PRAF</i> in Honduras: Households that receive CCT are less dependent of receiving income from their children (income effect). CCT can also increase school enrollment (condition for the transfer). Therefore, CCT may reduce child labor. Empirical evidence suggests no significant impact of CCT on child work.
	Attanasio et al. (2006)	<i>Familias en Acción</i> in Colombia: No significant impact of CCT on child work
	Skoufias and Parker (2001)	<i>Oportunidades</i> in Mexico and <i>Bono de Desarrollo Humano</i> in Ecuador: Significant negative impact of CCT on child work
	Edmonds and Schady (2008)	
	Yap, Sedlacek, and Orazem, (2008)	<i>Peti</i> in Brazil: Significant negative impact of CCT on child work
Adult Labor Supply	Parker and Skoufias, (2000); Skoufias and di Maro, (2006)	<i>Oportunidades</i> in Mexico: CCT recipients may believe that, to continue to be categorized as "poor" and eligible for the programs, they need reduce their labor supply (price effect). Also, if leisure is a normal good, disincentive effects on adult labor supply are expected (income effect). Empirical evidence suggests no significant impact of CCT on adult labor supply.
	Maluccio and Flores (2005)	Evidence for Nicaragua suggest significant negative effects of CCT on male labor supply but not on female
	Hoynes (1996)	Empirical evidence for the <i>AFDC-UP</i> program in the US suggests that labor supply and welfare participation among two-parent families are highly responsive to changes in the benefit structure of the program, suggesting sizable work disincentives.
Choice of Employment sector (formal vs. informal)	Barros (2006)	Empirical evidence for <i>Seguro Popular</i> (subsidized health for informal workers) in Mexico shows no significant impact of the program on the size of informal sector and labor force participation.

Camacho & Conover (2007)	The study evaluates the <i>Subsidized Regime</i> in Colombia and finds a significant higher probability of being informal for people below the eligibility threshold relative to people above it (suggesting that the awareness of the expansion of the subsidized regime increases the probability of being informal). However, it does not provide enough evidence to assess how much informality increased as a result of expanding the health subsidies for informal workers after the Health Reform of 1993 since there is no information for the counterfactual distribution (in absence of the reform, how many workers that were informal in the period pre-reform could have been formal today).
Gasparini, Haimovich, and Olivieri (2006)	This study finds some evidence of an informality-incentive effect due to <i>Jefes de Hogar</i> (a rather large cash transfer to unemployed household heads) in Argentina.

Source: Shady (2009) and Authors compilation

A common concern regarding SA transfers is that they can introduce *perverse incentives*. Although SA transfers in Turkey remain low for European standards, investment in these programs has been increasing in recent years. In particular, the government is expanding access to subsidized health for individuals in the informal sector through the rapid expansion of the Green Card program. The Green Card program displays some features that could potentially affect workers decisions to remain in the informal sector: it is rather generous in terms of per-capita transfer allocations, it covers a significant share of the poor (about 50 percent of all individuals in the poorest quintile), and its eligibility requires individuals to not be registered in social security (i.e. beneficiaries need to work in the informal sector or to be unemployed). Restricting SA programs to un-registered workers is a commonly used strategy to target the most vulnerable groups. However, generous non-contributory programs may create perverse incentives for individuals to join or remain in the informal sector as they can access free health services without paying taxes and/or contributions thus being able to get higher “net” labor earnings. This phenomenon is especially relevant in countries with high levels of social security contributions, as it is the case in Turkey (Betcherman and Pages, 2008).

Previous literature has found only marginal effects of non-contributory health programs on informality. Colombia and Mexico are two middle-income economies in Latin America that seem to share some similarities with Turkey relevant for this study. Colombia and Mexico displayed a large share of total employment not registered in social security, at about 55 percent in 2006 (World Bank, 2007) and they have a large and comprehensive non-contributory health insurance system: the *Plan Obligatorio de Salud Subsidiado* (POSS) in Colombia and the *Seguro Popular* in Mexico. Two recent papers analyze the impact of these two programs on informality. Camacho and Conover (2007) analyze the effect of the 1993 Health Reform in Colombia. The reform introduced the POSS program, which provides free access to health insurance and medications for individuals who do not have a formal job. In order to be eligible for the POSS programs, individuals need to be below a certain score (called the SISBEN score), which is a proxy

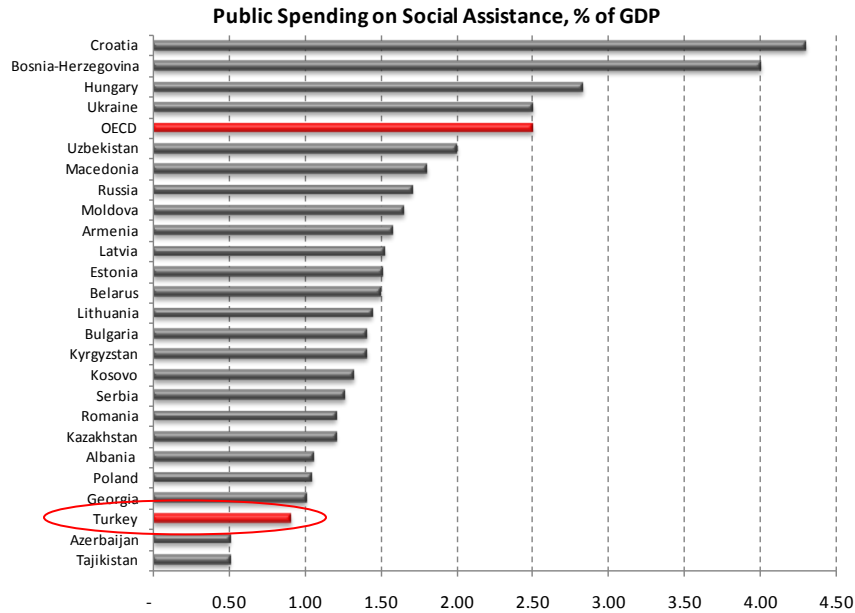
means testing mechanism that the Colombian government employs to identify the poor. In order to assess the impact of the program on informality, the authors analyze informality rates above and below the SISBEN score and found only a very small jump of the probability of being informal at the eligibility threshold, suggesting a moderate impact of the POSS program on informality.

Barros (2008) analyzes a large expansion of the government-funded healthcare for people employed in the informal sector (*Seguro Popular*) in Mexico in year 2002. The author finds no impact of the program's expansion on informality. The author argues that a plausible explanation for this result is the low quality of the healthcare provided under *Seguro Popular*. This last result highlights a key dimension: the perceived value of the benefits provided by the program. Indeed, workers would be more prone to alter their behavior if the benefits of the program are large. In this respect, Gasparini et al. (2007) analyze this topic for a large poverty-alleviation program in Argentina named *Programa Jefes de Hogar* (PJH). This program provides cash transfers to unemployed household heads. In practice, the difficulty in monitoring the unemployment requirement for informal (unregistered) workers would imply a disincentive for the program participants to search for a formal job. By applying matching techniques to panel data, they find some evidence on the informality bias of the program when the value of the cash transfer is relatively high compared to wages in the formal labor market. However, the effect of the distortion vanished when -- with time -- real wages in the formal sector went up substantially while the value of the PJH transfer remained fixed.

2. A Brief Review of Social Assistance Programs in Turkey

SA in Turkey is only a small component of the social protection system in the country. The social protection system in Turkey has historically been based on Bismarckian principles, whereby social insurance (mainly pensions, health insurance, disability benefits, and unemployment insurance) are all linked to employment in the formal sector within what is called "the contributory system" (Aran, 2008). The contributory system, as its name suggest, is mostly financed by employee and employer's social contributions at the work place. On the other hand, the non-contributory system in Turkey, which provides some services to the poorest segments of the population, has traditionally been smaller and characterized by limited coverage and service provision. Indeed, as illustrated in Figure 1, Turkey is one of the countries in ECA spending the least on non-contributory SA (at 0.90 percent of GDP vs. an average of 2.5 percent of GDP in OECD countries).

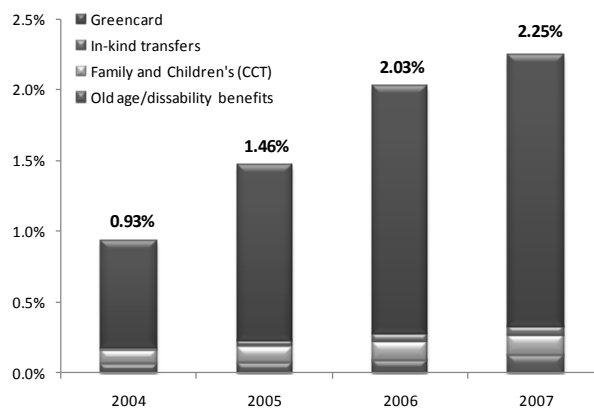
Figure 1: Turkey is one of the ECA countries that invests the least on SA



Source: Lindert (2009). Data for years 2005/2007; data for Turkey is for year 2007

But spending on SA in Turkey is growing rapidly. Data in Figure 2 indicate that spending on SA in Turkey as a share of total government spending has been increasing rapidly in recent years (from 0.93 to 2.25 percent). Such an increase was mainly driven by a rapid increase in spending for non-contributory health insurance (i.e. Green Card). Indeed, expenditure on the Green Card program increased by roughly 3 fold between years 2004 and 2007 (from 1,691 to 4,570 million YTL in real 2007 currency). Expenditure on other SA programs remained low and rather unchanged.

Figure 2: Expenditures on SA as a percentage of total Government Spending (%)



Source: processed from Aran (2008)

Table 2: The Green Card program constitutes the main budget item for SA spending in Turkey

Total Non-contributive SA	2004	2005	2006	2007
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In Million of 2007 real YTL	1,691	2,549	3,661	4,570
% Old age/disability benefits	6.5%	5.0%	4.4%	5.6%
% Family and Children's (CCT)	10.5%	7.9%	6.3%	6.0%
% Green Card	81.0%	84.6%	86.4%	85.4%
% In-kind transfers	2.0%	2.5%	2.8%	3.0%

Source: processed from Aran (2008)

The SA system in Turkey is composed mainly by four programs: old-age/disability benefits, in-kind transfers, family and children’s benefits, and non-contributory health insurance (Green Card). The Green Card is the largest non-contributory program, accounting for about 85 percent of the SA budget in year 2007 (Table 2). Non-contributory SA programs are generally managed by the Social Security Administration and the Social Solidarity Fund. Programs are generally run by provincial offices where program eligibility is determined by boards. Eligibility is generally determined in an ad-hoc basis. According to the law, beneficiaries are eligible to most SA programs if they are not registered in social security and live in household with a per-capita income below one third of the net minimum wage. In practice, local boards determine eligibility based on their knowledge of the people in the community. In some cases, boards use ad-hoc proxy-means testing methods (e.g. boards disqualify individuals who own a car and/or youngsters) and use cross validation with data from the social security administration. A brief description of the main SA programs in Turkey (objective, eligibility, and management) is provided in Table 3.

Table 3: Main Non-contributory SA Programs in Turkey

	<i>Program Description</i>	
Old-age/disability benefits	Brief Description	Helps individuals who are over 65, poor with a monthly subsistence salary. Individuals not over 65 but who are disable can benefit from this program.
	Regulation	Started in 1976, by Law. No. 2022 and together with Law No. 5378 eligibility conditions were specified.
	Eligibility	Beneficiary should be over 65 (or disable) and should not benefit from any income/salary under any name from any of the Social security organization. He/she should prove his/her neediness with the documents to be obtained by themselves from the provincial or county administration board.
	Management	Social Security Administration. Funding for this program comes directly from the State's Budget.
In-kind transfers	Brief Description	The program provides mainly in-kind assistance to poor households not covered by other social security schemes. The aid provided consists of food, fuel, housing aid as well as scholarships for higher education, and transportation of disabled students to school.
	Regulation	Law No. 3294. dated 29 May 1986
	Eligibility	Beneficiaries must be poor (as defined by the municipal board) and shall not receive benefits from any social security institution established.
	Management	Social Assistance and Solidarity Promotion Fund. Funding comes from the Social Assistance and Solidarity Promotion Fund (at the municipal level) and from private foundations.

Family and Children's Benefits (CCT)	Brief Description	<p>This CCT program in Turkey was initiated in 2001 under the Social Risk Mitigation Project supported by the World Bank. In 2001, the program was piloted in 6 provinces and then was scaled up nationwide between 2003 and 2006. The program provides cash transfers for education and health support.</p>
	Eligibility	<p>The health component of the program targets mothers of children between the ages 0-6, as well as pregnant women with the level of benefits around 17 YTL per month. The education component of the program provides stipends for children in basic education (grades 1-8) and senior secondary school (grades 10-12) with cash benefits ranging from 18 YTL (for boys) to 22 YTL (for girls) per month for 12 months in the year. There is not limit on the number of children who benefit from this program per household. The families registered under any other social security program are not eligible under the CCT.</p>
	Management	<p>The Social Assistance and Solidarity Fund is the institution that is in charge of distributing the cash benefits through its 931 local branches at the district level.</p>

Source: Processed from Aran (2008) and SSI (2008)

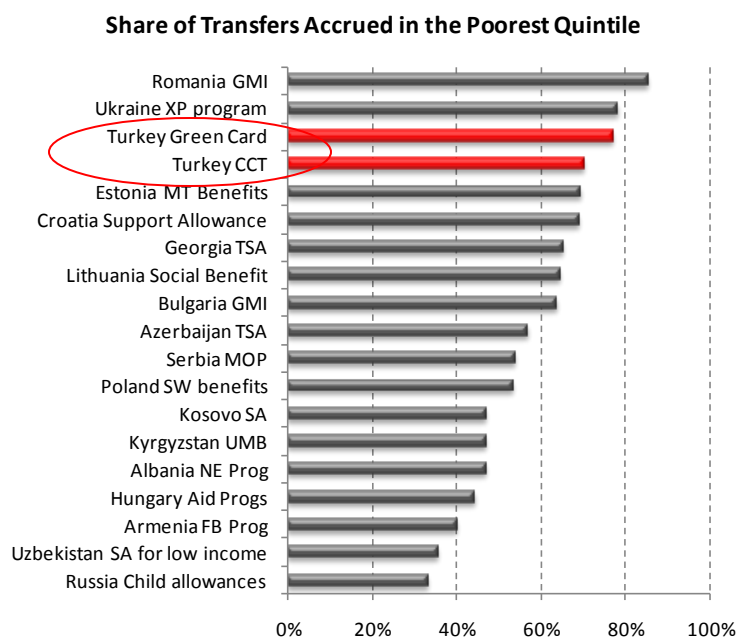
Table 3: cont.

	<i>Program Description</i>	
Non-contributory Health Insurance (Green Card)	Brief Description	Since 1992, the objective of the Green Card program has been to meet the medical expenses of the poor who are not covered by other social security institutions. Started in 1992, the program covers: (i) outpatient treatment, examination, tests and medicines in health care facilities, (ii) prenatal care and delivery expenses ,(iii) emergency medical care. Expenses on pharmaceuticals do require beneficiary's co-payment.
	Regulation Eligibility	The program came into effect under Law No: 3816 in 1992. Beneficiaries should not be covered under other social security institution and shall not have income or income share within the family less than 1/3 of the minimum wage excluding taxes and social insurance premiums.
	Management	The targeting of the Green Cards is carried out at the local level through provincial and district administration boards. The budget allocation for the programs is assigned to the Ministry of Health so as to cover the cost of health services to be provided.

Source: Processed from Aran (2008) and SSI(2008)

Although Non-contributory SA programs are small in size and coverage, they seem to be very well targeted. Previous findings using data from the 2006 Turkish Household Budget Survey (Aran, 2008) indicate that even though SA transfers in Turkey are low in size and coverage, they are very well targeted. Indeed, most of the benefits of the non-contributory SA programs in Turkey accrue among households in the bottom two quintiles.

Figure 3: Turkey has two of the best targeted programs in the ECA region.



Source: Linder (2009) and Nguyen and Sundaram (2009)

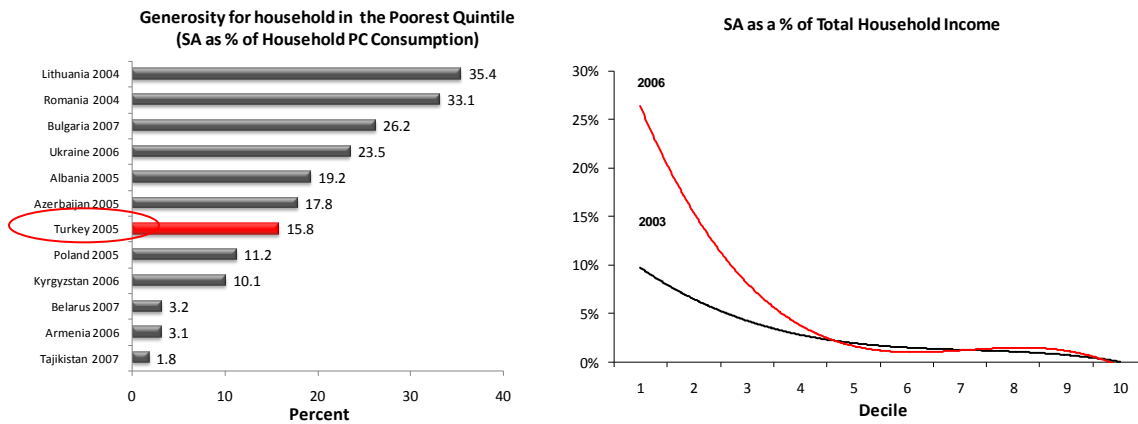
The Green Card program is particularly progressive, with 83 percent of its benefits accrued in the bottom 2 quintiles (Aran, 2008). Furthermore, the Green Card program and the Family and Children's benefits CCT are two of the best targeted programs in the ECA region (Figure 3).

3. Social Assistance as a Determinant of Sector Choice.

There are three important dimensions that need to be considered when analyzing the impact of SA programs on informality: generosity, coverage, and eligibility design. When analyzing the impact of SA programs on informality it is important to understand the particular incentives that programs may create on beneficiaries. An important dimension for analysis is the programs' generosity. Indeed, highly generous programs (i.e. those with transfers that could constitute a large share of household's income) generally create welfare dependency and could adversely affect labor market decisions of beneficiaries. A program's coverage (i.e. share of the target population actually benefiting from the program) is also an important factor as it can potentially influence aggregate outcomes in localities where the program is implemented. The third dimension concerns program eligibility design. If a programs eligibility design requires recipients to be unemployed or informal, for example, the program may create incentives for the recipient to remain unemployed or informal for a longer period than if the program did not exist. In Turkey, the eligibility design could potentially contribute to increase informality and/or to extend individuals prevalence in the informal sector since all SA benefits require recipients to be outside the contributory sector of the economic (i.e. in the informal sector).

For ECA standards, overall non-contributory SA transfers in Turkey display "average" generosity among the poor. A generally accepted measure to proxy generosity of SA programs in a country (Lindert, 2009) is the size of SA transfers as a share of total household income for households in the poorest quintile. As displayed in the left panel of Figure 4, such share in Turkey is at 15.8 percent. Compared to other countries in the ECA region, this share seems neither high nor low. But generosity of SA has been increasing rapidly since 2003. The right panel of Figure 4 shows SA transfers as a share of household income (by decile) for the years 2003 and 2006. The figure indicates that SA transfers are an important source of total household income for household in the poorest 3 deciles. As expected, SA transfers are a negligible source of income for households in the middle and upper deciles. Estimates also indicate that SA transfers have become a much more important source of income in 2006 as compared to 2003, especially among households in the poorest two deciles.

Figure 4: But generosity of SA Programs in Turkey increased significantly between years 2003 and 2006.



Source: Nguyen and Sundaram (2009) and authors' own calculations using 2003 and 2006 HBS data

The Green Card transfers account for 82 to 92 percent of all SA transfers among the poor. Data indicate that the Green Card is the only SA program in Turkey with a high level of generosity among the poor. Table 4 contains information on income from SA transfers per month for poor households in Turkey (i.e. the bottom 30 percent of the population sorted by per-capita consumption). Results indicate that SA transfers account for 23.5, 10.8, and 5.4 percent of the overall income for households in the first, second, and third per-capita consumption deciles. Furthermore, results indicate that Green Card transfers account for 82 to 92 percent of all SA assistance transfers. The generosity of the remaining SA programs (other than the Green Card) is rather limited. Indeed, all other SA programs combined (CCTs, old-age/disability benefits, and in-kind transfers) account for at most 2 percent of the overall income of poor households. Therefore, the impact of these programs on labor market outcomes (including sector's choice) is likely to be limited (and perhaps negligible) (Table 4) (Box 1)

Table 4: Composition and size of SA transfers among poor households in Turkey

<i>Consumption Decile</i>	<i>1</i>	<i>2</i>	<i>3</i>
Estimated Average Income (YTL / month)	932.94	1361.34	1820.58
Estimated Average Social Assistance (YTL / month)	219.31	146.47	98.29
% Old Age Benefit	4.68	7.34	7.01
% Family and Children CCT	0.36	0.38	4.36
% In-Kind Government Transfers	3.47	4.58	6.65
% Green Card Program (subsidized health)	91.49	87.69	81.98
SA transfers as % of income	23.5	10.8	5.4
Non-Green Card SA transfers as % of income	2.00	1.32	0.97

Source: Authors' own calculations using 2006 HBS data

Box 1: Impact of the CCT Program on Employment Outcomes in Turkey

The specific objectives of the CCT in Turkey are to increase school attendance rates for the poor, decrease dropout rates, increase immunization coverage, and enhance the utilization of health facilities for the 1.1 million target beneficiaries. A concern among policymakers and stakeholders about cash transfer programs is that they might create a disincentive for people to participate in the labor market. Given work insecurities and fluctuating income, the thought is that households will become reliant on steady CCT money. In 2007, The International Food Policy Research Institute (IFPRI) produced a report of an impact evaluation of the CCT program in Turkey.

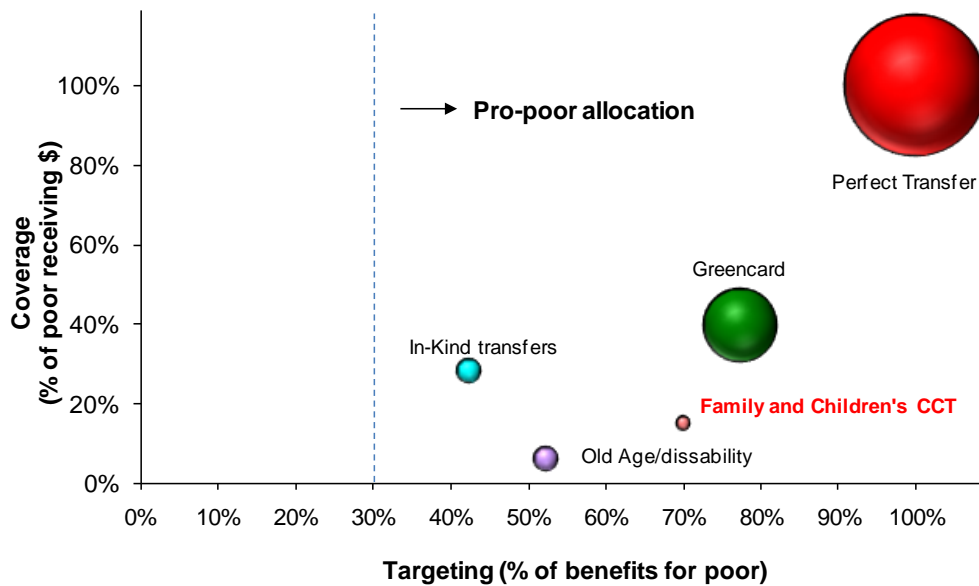
Concerning the effects of the program on labor market outcomes, the IFPRI study found that CCT does not appear to have any impact on work patterns among adults (employment, unemployment, or labor participation). Beneficiaries generally follow similar work patterns as they did before the implementation of the CCT program. Impact of the CCT on child labor appears modest. Children continue to value work in the same way they did before, and adults continue relying on it not only as a coping strategy but as a way to increase the marketability of their children.

The Green Card program displays some features (in relation to generosity and coverage) that suggest it could affect beneficiary's employment decisions. Figure 5 analyzes targeting performance, coverage, and generosity of non-contributory SA program in Turkey using a three dimensional figure by which the main results of a benefit-incidence analysis can be easily visualized. Each dimension of the figure represents a different indicator. The vertical axis represents the share of the poor that benefit from the income source (coverage). The horizontal axis represents the share of the total program expenditures that reach the poor (targeting). The size of the bubble, which represents the generosity of the program, is proportional to the average per-capita transfer "received" by households (a larger bubble indicates a larger per-capita transfer in monetary terms).

The Green Card is the most Generous SA program: The large bubble on the upper right corner on Figure 5 represents the size of a perfectly targeted transfer that would be sufficient to eradicate poverty (the coverage and the targeting among the poor would be 100 percent, and the transfer would provide to each poor household exactly what is needed to lift the household above the poverty line). The size of this perfect transfer would be equivalent to YTL\$192 per-capita per month and it is calculated as the poverty gap times the poverty line. In this note, we assume that 30 percent of the population in Turkey is poor.¹ As illustrated by the graph, most SA transfers in Turkey, except the Green Card, seem quite small as compared to the perfect transfer; indicating, as mentioned before low levels of generosity. Indeed, even if all SA transfers in Turkey were pulled together in a single program/transfer, they could not amount to the size of the perfect transfer. In particular, adding together all SA transfers would account only to YTL\$66.9 per-capita per month (vs. YTL192 per capita per month; which is the average amount needed to eradicate poverty).

¹ Unfortunately, available data did not contain regional dummies and/or regional price deflators. As such, poverty calculations resulting from the data would not be consistent with those of TUIK.

Figure 5: Targeting, Coverage, and Generosity of SA programs in Turkey [2006]



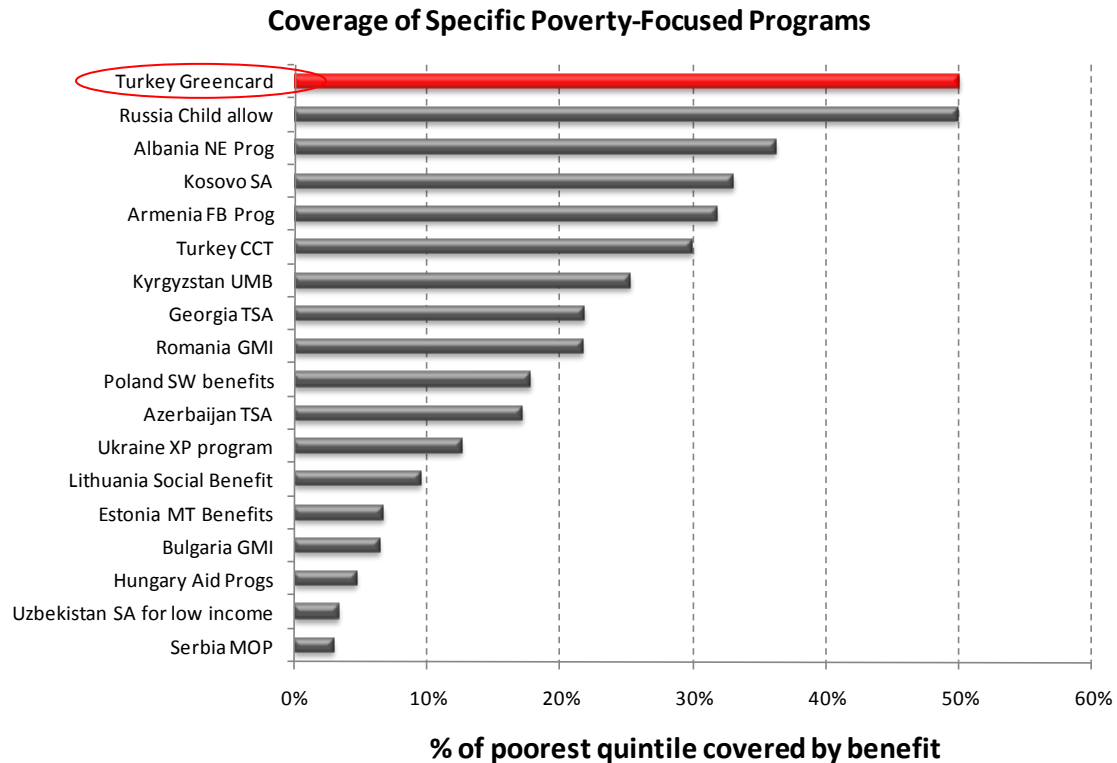
Source: Authors' own calculations using 2006 HBS data. Targeting and coverage of Family and Children's CCT from Lindert (2009)

The Green Card is the best targeted SA program in Turkey: The horizontal axis in Figure 5 represents the share of various types of transfers that reach the poor. Given that the poor represent about 30 percent of the population, a share higher than 30 percent in the horizontal axis means that proportionately to their weight in the population, the poor benefit more than the non-poor (on average) from the transfer. Results indicate that all SA transfers in Turkey are being allocated progressively. Note that the Green Card is the best targeted program in Turkey with approximately 77 percent of all its benefits targeted to the poor.

The Green Card is the SA program with the highest coverage: The vertical axis in Figure 5 provides data on the share of the poor that benefit from various types of transfers. Results indicate that 50 percent of all poor households receive Green Card (about 10.2 million individuals). This share is quite high as compared to coverage rates among the other SA programs (28 percent for in-kind transfers, 6 percent for Old age and disability benefits, and 17 percent for family and children CCTs).² Indeed, the Green Card is one of the SA programs in ECA – together with the child allowance program in Russia – displaying the highest coverage among the poor (Figure 6).

² According to administrative statistics from the ministry of Health, as of September 2008 the total number of Green Card holders in Turkey was around 9,4 million (Aran, 2009).

Figure 6: The Green Card is one on the Programs in ECA with the largest coverage rates among the poor.

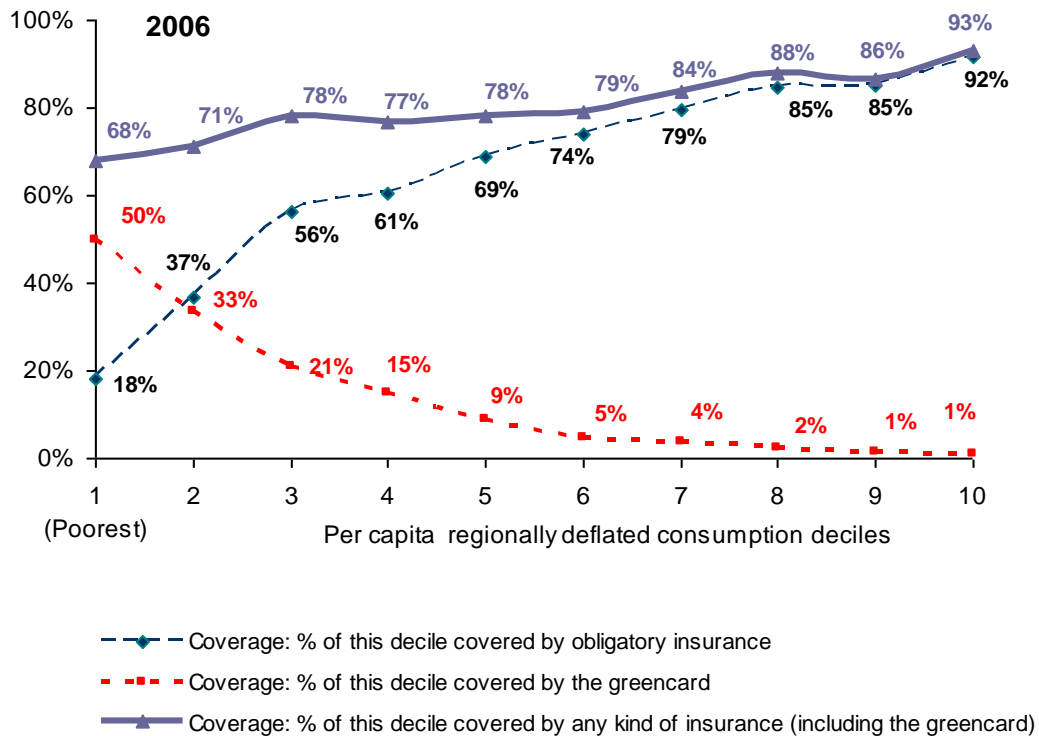


Source: Lindert (2009) and Nguyen and Sundaram (2009)

4. A closer look to the Green Card Program

Besides being the most generous SA program, the Green Card constitutes the main source of health insurance for the poorest households in Turkey. Since Turkey is moving towards achieving universal health coverage, the share of the population with access to health insurance has increased significantly in recent years. This has occurred through an expansion in both the contributory and non-contributory health schemes. Between 2003 and 2006, coverage of contributory insurance schemes (SSK, Emekli Sandigi and Bagkur) expanded from 40.6 to 47.6 million individuals. In the same period, the total number of individuals with access to the Green Card increased from 2.5 million in 2003 to 10.2 million in 2006 according to HBS 2006 data (Aran and Hentschel, 2008). As a result of the expansion, the percentage of population in 2006 not covered by any kind of health insurance declined to less than 20 percent nationally. The Green Card is the main source of health insurance for the poorest households in Turkey (Figure 7). Indeed, without the Green Card, a large majority of the population in the poorest 2 deciles would not have health insurance. As such, the Green Card seems to be providing an important social service to the poor.

Figure 7: Health Coverage by Socio-Economic Status [Turkey, 2006]

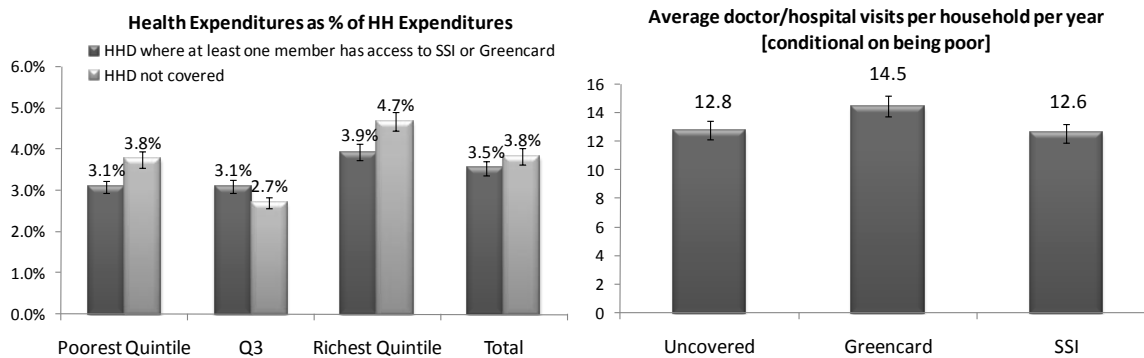


Source: Aran and Hentschel (2008)

The Green Card program design provides some extra “incentives” for individuals to remain in the informal sector. Besides the fact that all SA programs in Turkey described in this note require beneficiaries be unregistered in social security (i.e. in the informal sector), the Green Card program may have some other design factors that could potentially affect individual choices to remain in the informal sector. First, Green Card beneficiaries do not have copayments for in-patient and out-patient care, while beneficiaries from the contributory health system do have to pay co-payments (albeit small). Second, there is no time limit for enjoying Green Card benefits. As long as individuals remain eligible (i.e. informal and poor), they can benefit from the program. Third, moving to a “formal” job poses a risk for individuals to eventually lose their access to health insurance. Anecdotal evidence suggest that some Green Card beneficiaries perceive that getting a formal job may be risky, since some workers are laid-off before one year of service. This occurs because after 12 months of formal employment employees become eligible to severance payment protection. Since individuals who move from the informal to the formal sector must give up their Green Card, they become somehow exposed to the risk of being laid off and uninsured. Obtaining a new Green Card may take 8 to 10 months, during which individuals and their families would be out of any health insurance scheme.

Green Card beneficiaries utilize more health services than non-beneficiaries, conditional on being poor. As illustrated in Figure 8, Green Card beneficiaries display slightly higher doctor/hospital utilization than non-beneficiaries, conditional on being poor.³ This may occur because Green Card holders are likely to be in the poorest segment of the population and thus be more likely to be sick. Furthermore, estimates using the 2006 HBS data (Aran and Hentschel, 2008) indicate that, on average, households who have access to health insurance (either SSI or Green Card) spend less on health, especially among the poor. This suggests that without insurance schemes poor individuals would likely spend more out-of-pocket to pay for health services, which would in turn contribute to higher poverty rates.

Figure 8: Health expenditures and Utilization by Insurance Type [Turkey, 2006]

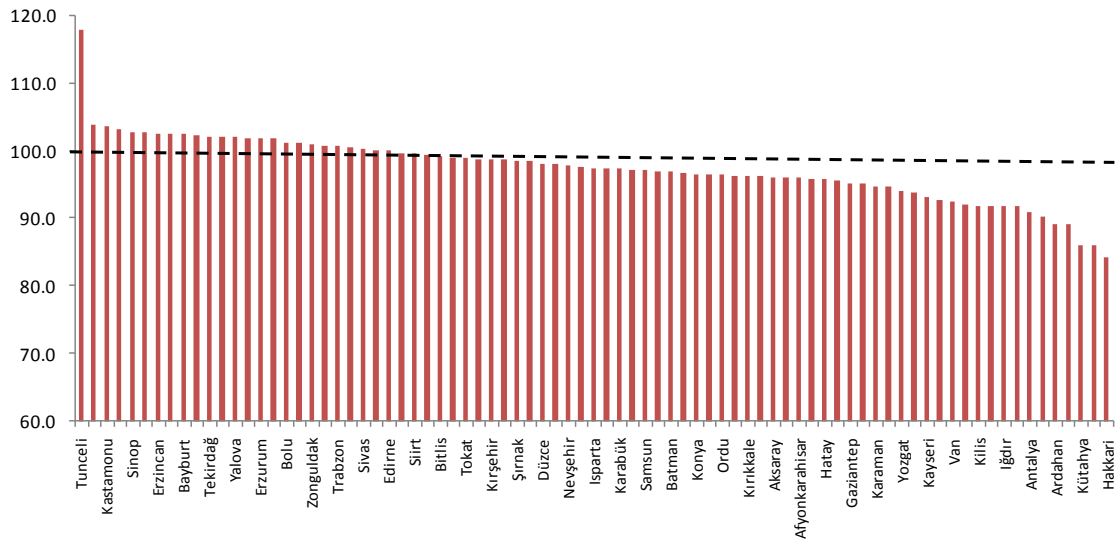


Source: Aran and Hentschel (2008) and authors own elaboration using the WB informality Survey.

But some beneficiaries may be abusing the system. While the Green Card program seems to be an important source of healthcare among the poor, there may be some abuses to the system. Indeed, anecdotal evidence indicates that some individuals may actually have double coverage (social security and Green Card). This may occur, for example, when a young woman (living in a household eligible to the Green Card program) gets married and her husband works in the formal sector. In cases like this, individuals may have the incentive to keep her Green Card in order to avoid some of the co-payments that are required by the contributory health system. Indeed, regional data indicates that in some municipalities the share of the population covered in the contributory and/or in the non-contributory health system surpasses 100 percent (suggesting double coverage) (Figure 9).

³ Poor households in the WB informality survey are defined as those with an income level lower than 900 YTL per month.

Figure 9: Share of the Population with any Type of Health Coverage [December 2008]



Source: SGK

5. Estimating the Impact of the Green Card on Informality

In this section, we test empirically whether the Green Card program is actually contributing to higher informality in Turkey. As it has been presented in sections 3 and 4, the Green Card program displays some features that could potentially affect workers decisions to remain in the informal sector. In order to test empirically such association, we use the eligibility requirement of having an income less than one third of the minimum wage in order to qualify for the program as a basis for our analysis. Those individuals lying close enough to the cutoff point are expected to be quite similar in terms of the relevant attributes, except for qualifying or not for the program. Hence, by comparing them we can evaluate the impact of Green Card in different dimensions. This popular identification strategy is known as “discontinuity design” (Box 2). In our case, the discontinuity refers to the eligibility threshold (i.e. the income threshold established in order to target the program). Naturally, we cannot draw causal inference by comparing the extremely poor with the rich. However, as we get closer to cutoff point, the individuals become (on average) more similar in terms of their attributes. Those who are marginally above the threshold are comparable to those who are marginally below the threshold and, therefore, can be used as a reasonable comparison group.

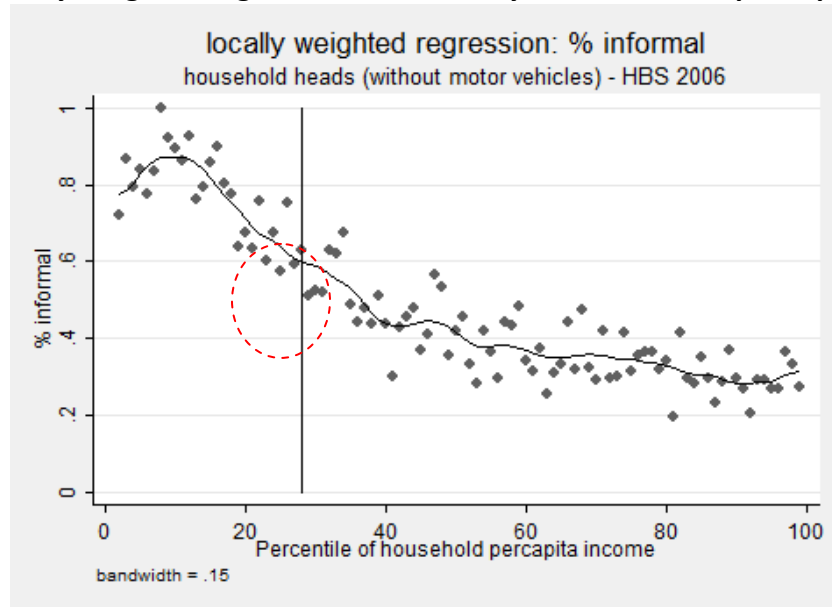
Box 2. Identification strategy: the regression discontinuity design

The design of Green Card allows us to exploit a popular identification strategy: the regression discontinuity design. This methodology, introduced during the 1960s by Thistlewaite and Campbell, was not spread in the economic literature until recently, in the late 1990s. The main idea is simple. In certain contexts the assignment to a treatment is a discontinuous function of an observable covariate. The treatment depends on whether the value of this covariate is above or below a certain threshold, and people cannot self select into treatment by altering their behavior to achieve such threshold. Those observations lying close enough to the cutoff point are expected to be quite similar in terms of the relevant attributes, allowing to draw causal inference by comparing them. Frequently, these thresholds for treatment arise with the eligibility conditions imposed by governments dealing with scarce resources and the search of transparency in the assignment of social programs.

Imbens and Lemieux (2008) compile many examples of recent studies taking advantage of these kinds of designs. Among them, van der Klaauw's (2008) carry out an evaluation of a compensatory education programs on student performance in New York City public schools during the 1993, 1997, and 2001 school years. He takes advantage of the discontinuity in the rule that determines eligibility: schools with poverty counts above the district average qualify for the program, while the rest do not. So this provides the basis of a regression discontinuity evaluation, since all schools near the average have comparable poverty counts, but their treatment status differ. Other interesting example is found in Chen and van der Klaauw's (2009). This paper assesses the work disincentive effects of the Disability program during the 1990s in the United States, exploiting the fact that the eligibility determination process is based in part on the age of individuals. They exploit this age discontinuity to estimate the impact on labor supply for an important subset of applicants.

Estimates do not provide evidence of an “informality” discontinuity at the threshold, suggesting that the Green Card program is not affecting sector choice, at least at the aggregate level. Figure 10 displays the relationship between household per capita income (X axis) and the expected probability of working in the informal sector (Y axis) as estimated by a locally weighted regression (at a per-capita income percentile level). The dependent variable is the share of workers that are not registered with social security institutions in each percentile. The independent variable is the percentile of household per capita income. The sample excludes households who have motor vehicle, since this is generally a condition that disqualifies individuals from obtaining SA. The vertical line plotted in this figure stands for the Green Card eligibility income threshold (i.e. one third of the minimum wage, as defined by law). Not surprisingly, estimates indicate a negative relation between income and informality (i.e. informality decreases as per-capita household income increases). Estimates do not provide evidence of a discontinuity at the threshold, suggesting that the program may not be introducing significant distortions on the probability of working in the informal sector around the eligibility income level. Similar results are obtained when controlling by observable characteristics and employing different econometrics techniques (such as linear partial regressions and probit regression models) (results available upon request).

Figure 9: Locally weighted regressions: informality and household per capita income



Source: Authors own estimates using 2006 HBS

But there are important caveats to using this method in the Turkey context. In theory, the eligibility criteria for SA programs are to not be registered in social security and to live in a household whose per-capita income is below one third of the net minimum wage. In practice, the eligibility criteria vary across municipal offices. As such, it is actually uncertain where exactly the “eligibility threshold” is in the household per-capita income distribution. Analysis indicates that the relationship between informal employment and household per-capita income is rather smooth and there are no drastic changes (like spikes or kinks) along the per-capita income distribution, except at the very beginning of the distribution where most workers are informal anyway. As such, results may be inconclusive. Generally, SA programs are targeted to individuals who are eligible according to a pre-determined definition. In order to determine the impact of a program on labor market outcomes, one would compare individuals who get the program (treatment group) with very similar individuals who do not get the program (control group) given that they are eligible to receive the program. Unfortunately, *analyzing the effects of the green card program on informality through non-experimental techniques is practically impossible* because there is not an available control group (i.e. the outcome of interest – informality – is at the same time one of the program’s eligibility requirements).

We also analyze the Impact of a continuous expansion of Green Card spending on “aggregate” informality, using a partial equilibrium model of two sectors with an endogenous formal sector. The model assumes that shocks in the economy (such as higher expenditures on SA and/or changes in the labor costs, among others) generate incentives for workers and firms to move in and out of informality. Among other assumptions, in the model firms and workers adjust behavior to changes in SA benefits offered to workers in the informal sector while firms and workers adjust behavior to changes in non-wage labor costs and benefits offered to workers in the formal sector (Box 3). The model used here assumes that workers have the choice to move freely across sectors with no “migration” costs involved, looking for higher wages relative to their productivity levels (i.e. markets are integrated, not segmented). However, the Turkish labor market in Turkey may actually be segmented. As such, *results provided by the equilibrium model are likely to have an upper-bias.*

Box 3. Equilibrium Model Assumptions, Robayo (2009)

Formal Sector:

- (i) **Firms** in the formal sector have to pay mandatory social security contributions and adjust their demand for labor to changes in these non-wage labor costs (I.e. Firms in the formal sector adjust their employment growth based on the growth in wages and in non-wage labor costs relative to productivity).
- (ii) **Firms** in the formal sector have a production function that displays Constant Returns to Scale (CRS) (Taymaz, 2009)
- (iii) **Workers** in the formal sector are registered in a social security institution and are paid the value of their productivity (i.e. they work in a competitive labor market setting).
- (iv) **Workers** in the formal sector have to pay mandatory social security contributions to have access to some services (health, pension, unemployment insurance, etc.) and value these non-wage labor benefits based on the perception of the quality of the services offered.

Informal Sector:

- (i) **Firms** in the informal sector are not subject to social security contributions, neither covered by labor laws; therefore labor costs are only constituted by wages.
- (ii) **Workers** in the informal sector do not pay social security contributions but instead receive social assistance from the government, in particular subsidize health (Green Card).

Movements across sectors:

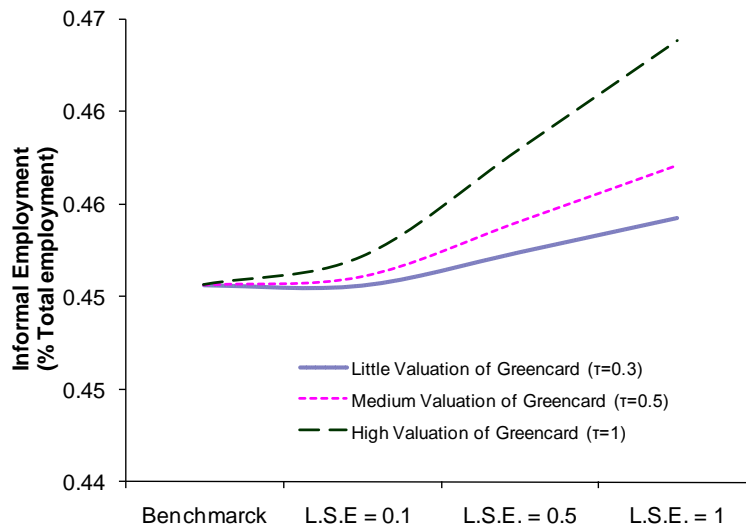
- (i) The cost of social contributions as well as worker’s valuation of these benefits may affect workers’ decisions of whether to remain formal, or to move to the informal sector.
- (ii) Non-contributory assistance (i.e. benefits at no extra cost) may cause perverse incentives to remain in the informal sector. Workers may prefer to work in the informal sector instead of the formal sector depending on the elasticity of substitution between sectors, the degree of mobility across sectors and the degree of labor market segmentation, as well as the subjective valuation of such services).

Other Assumptions of the Labor Market

- (i) A faster growth in wage and non-wage labor costs relative to productivity affect negatively employment growth.
- (ii) There is an involuntary initial unemployment by frictions.
- (iii) There is free movement between the formal and the informal sectors (i.e. no dual labor market/labor market segmentation).
- (iv) There is real wage flexibility in the labor markets. Markets adjust to shocks partially through wages.

Simulations also indicate that an expansion in SA investments may impact informality only marginally. After calibrating the parameters of the model, we simulated the impact of higher SA spending on informality.⁴ In particular, we simulate a similar increase in Green Card spending as that observed between 2004 and 2007 (i.e. a 170 percent increase in Green Card spending – equivalent to 313 percent increase in the share of “Green Card” transfers as a share of gross wages). Not surprisingly, higher investment on SA would contribute to higher informality. Somehow surprisingly, results indicate the effects of a large increase in SA spending would increase informality only marginally (from 0.450 to 0.464 at most). As presented in Figure 11, the effects of the simulated policy on informality are larger if workers have a higher valuation of the Green Card (as it is probably the case in Turkey) and to the extent that labor supply is more elastic (i.e. more responsive to changes in wage and non-wage costs).

Figure 10: Impact of Higher Green Card Expenditure on the Size of the Informal Sector



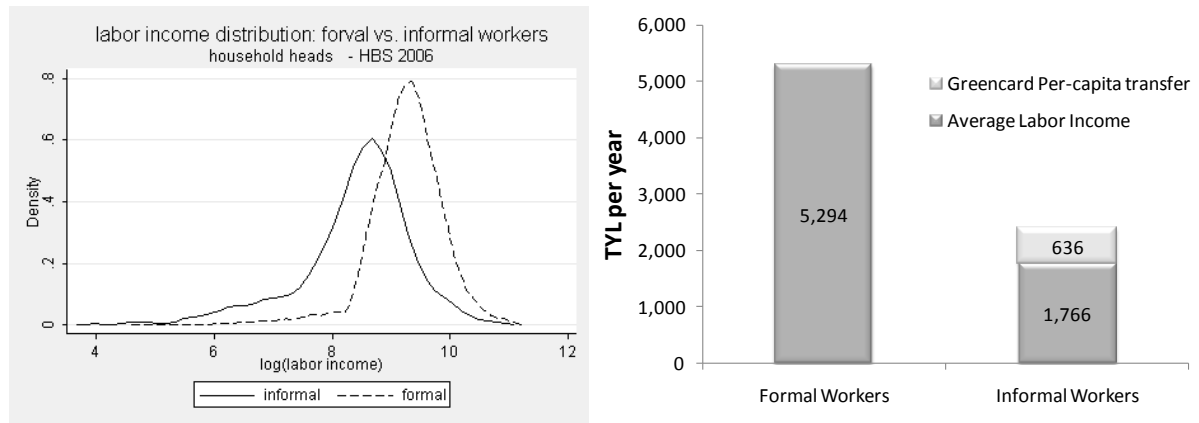
Source: Authors own calculation. L.S.E: Labor Supply Elasticity

The reason why the Green Card program (or its expansion) is not affecting informality by much is probably due to a large formal/informal wage gap. Evidence suggests that the formal and informal labor markets in Turkey display large wage differentials that are not explained by worker’s productivity. Indeed, previous work (Angel-Urdinola, 2009) finds that controlling for observable characteristics such as education, sector of employment, and age – among others –; workers in the informal sector are expected to earn hourly wages that are 40 percent lower than those of otherwise similar workers in the formal sector. Such differences in wages could be due to the existence of

⁴ The model was calibrated with the following parameters: Labor supply elasticity: 0.1, 0.5, and 1 (Based on Taymaz, 2009 and consistent with Hamermesh, 1993 and Killingsworth, 1983). Output elasticity of labor: 0.17/0.23 (Based on Hamermesh, 1993 and consistent with Betcherman and Pages, 2007)

segmentation in the labor market, whereby low mobility across sector make individuals queue in the uncovered sector with the hope of eventually getting a job in the covered sector. However, there is not “hard” empirical evidence that this is the case in Turkey. To make this finding more visible, the left panel of Figure 12 plots the “net” labor income distribution for workers in the formal and informal sectors. As illustrated by the Graph, formal workers earn much more than informal workers at all points of the distribution. The right panel of Figure 12 computes the average labor income for formal and informal workers for workers in the neighborhood of Green Card eligibility threshold (i.e. plus/minus 10 percent of the Green Card eligibility threshold). Results indicate that the formal/informal wage gap is so large, that even after accounting for the Green Card transfers, workers in the formal sector would earn “net” wages that are much higher than “gross wages” (accounting for Green Card benefits) in the informal sector. As such, low-income workers who have a chance to move from the informal sector to the formal sector would have string incentives to do so even if this would imply losing all SA benefits (i.e. the expected wage gains of moving to formality would by far surpass the “monetary” benefits provided by SA transfers by staying in informality).

Figure 12: The formal/informal wage differential in Turkey so large that Green Card transfers (albeit generous) may not influence worker’s sector choice.



Source: Authors own elaboration using 2006 HBS data.

Note: Graphs plot “net” labor income.

But there is a “risk” factor that may create incentives for some workers to remain in the informal sector, if they believe they may get fired soon after they obtain formal employment. According to data from a World Bank informality survey, only 2 out of every 10 uneducated workers in the urban labor market (at all age groups) transition from the informal to the formal sector. When doing so, workers (and their dependents) must give up their Green Card benefits. At the same time, workers face the risk to be laid off from formal employment before one year of service. As mentioned before, this occurs because after 12 months of service workers become eligible to severance payment protection. If the worker is laid off, he would need to re-apply for a Green Card. Obtaining a new Green Card may take between 8 and 10 months. If the worker

values health coverage highly – more than he values the additional wage he would earn in the formal sector – and believes that the probability of being laid off before one year is high; the worker may choose to remain working informally to avoid the risk of becoming uncovered. This may occur when individuals (and/or their dependents) are frequent users of health services and/or have delicate health conditions. However, it is difficult to quantify with the data at hand how many individuals could face such dilemma, and more analysis is needed to answer this question.

6. Conclusions and Recommendations

In theory, a generous SA program designed to benefit workers in the informal sector of the economy – such as Turkey’s Green Card program – could generate perverse incentives for workers to remain in the informal sector and/or not to search for formal jobs. In practice, however, the distortion can be small. This could happen if the supply of formal jobs is very limited for a typical SA recipient. This would imply that SA recipients would face a small chance of finding a formal job in any case so that the disincentives would not alter individual’s behaviors. Also, the impact of generous SA transfers may be limited in the context of segmented markets whereby wage gap between formal and informal workers is so large that, even after paying the social insurance contributions, formal workers earn much more. The latest seem to be a plausible explanation of why a rapid expansion of SA transfers in Turkey may not contribute to higher informality in the labor market.

Results in this note indicate that even though SA transfers in Turkey (and mainly the Green Card) display some features that could potentially influence worker’s sector choice, in practice this is not the case. This occurs because the formal/informal wage gap is so large, that even after accounting for the SA transfers, workers in the formal sector would earn wages that are much higher than those in the informal sector. However, some workers may have incentives remain in the informal sector if they believe they may get fired soon after they obtain formal employment, thus being at “risk” to becoming uncovered for some time. This may occur when individuals (and/or their dependents) are frequent users of health services and/or have delicate health conditions.

Although the Green Card program seem to be achieving its main purpose very well (i.e. provision of subsidized healthcare to the poor), future expansions of the program could avoid possible abuses of the system that could arise due to targeting deficiencies and/or incentives for some individuals to have double health coverage. As Turkey moves into achieving universal healthcare, the role of the non-contributory health sector (Green Card) will become more and more important. As such, it becomes important to revise, standardize, and make transparent across municipalities the eligibility criteria to benefit from the Green Card program. In a more general context, it could be beneficial to consider whether being “unregistered” in social security should continue to be a requirement to SA eligibility.

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