

Report No. 63112-AM

Armenia

Social Assistance Programs and Work Disincentives

June 1, 2011

Human Development Sector Unit
South Caucasus Country Department
Europe and Central Asia Region



Document of the World Bank

Acknowledgement

The report was produced under the South Caucasus Regional Programmatic Poverty Assessment task (P118159). The report was prepared in response to a request by the Office of the Prime Minister and was in part based on the findings of a World Bank mission that visited Armenia during November 2010. The World Bank team is grateful to several stakeholders in the Government of Armenia for their useful inputs and guidance. In particular, we would like to express our appreciation to H.E. Prime Minister Tigran Sargsyan; Minister Arthur Grigoryan, Deputy Minister Artem Asatryan, Deputy Minister Ara Petrosyan and Social Assistance Department Head Ms. Astghik Minasyan, Ministry of Labor and Social Issues; President Stepan Mnatsakanyan and Household Survey Department Head Ms. Diana Martirosova, National Statistical Services of the Republic of Armenia; Deputy Minister Vardan Aramyan, Ministry of Finance; Deputy Minister Mushegh Tumasyan, Ministry of Economy; Ms. Sona Harutyunyan, Head of State Employment Services; Ms. Adrine Nikoyan, Head of Arabkir Family Benefit and Social Services Center; and Mr. Zinavor Sargsyan, Head of Abovyan Social Services Center.

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CURRENCY EQUIVALENTS

(Exchange Rate Effective as of March, 2011)

Currency Unit = AMD (Armenian Dram)

AMD 1.00 = 0.0027 US\$

US\$1.00 = 365 AMD

FISCAL YEAR

January 1 to December 31

ABBREVIATIONS AND ACRONYMS

AMD	Armenian Dram
ECA	Europe and Central Asia
FBP	Family Benefit Program
GDP	Gross Domestic Product
GOA	Government of Armenia
ILCS	Integrated Living Conditions Survey
IV	Instrumental Variables
MLSI	Ministry of Labor and Social Issues
NSS	National Statistics Service
OECD	Organization for Economic Co-operation and Development

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Executive Summary

1. ***The objective of this note was to assess the extent of work disincentives of Armenia’s Family Benefit Program (FBP).*** The Government of Armenia (GOA) has expressed concerns over the potential work disincentives effects of its social assistance programs. The most important of these programs is the FBP, which was established in 1999 after Armenia consolidated several Soviet-era categorically-targeted programs into a single cash-based social safety net. The study team examined the FBP from several different angles. First, the team conducted a review of the international evidence—from both developed and developing countries—on work disincentives impacts of similarly designed social assistance programs. Second, it performed an analysis of the demographic and labor market profile of the beneficiaries in order to: (i) identify and quantify the size of the beneficiary population that could be reasonably expected to participate in the labor force; and (ii) compare their labor market characteristics to similarly-defined non-beneficiaries. Third, it compared the size of the FBP transfer to the prevailing minimum wage, average wage, poverty line, and average consumption expenditures of Armenian households—and thereby investigated whether FBP beneficiaries could survive on the benefit alone, and whether the transfer created any disincentive to formal work. Fourth, it examined the FBP targeting mechanism in order to identify any—even if unintentional—negative impacts on work incentives. Fifth, it used a rigorous empirical analysis to estimate the magnitude of any potential work disincentives created by the FBP.

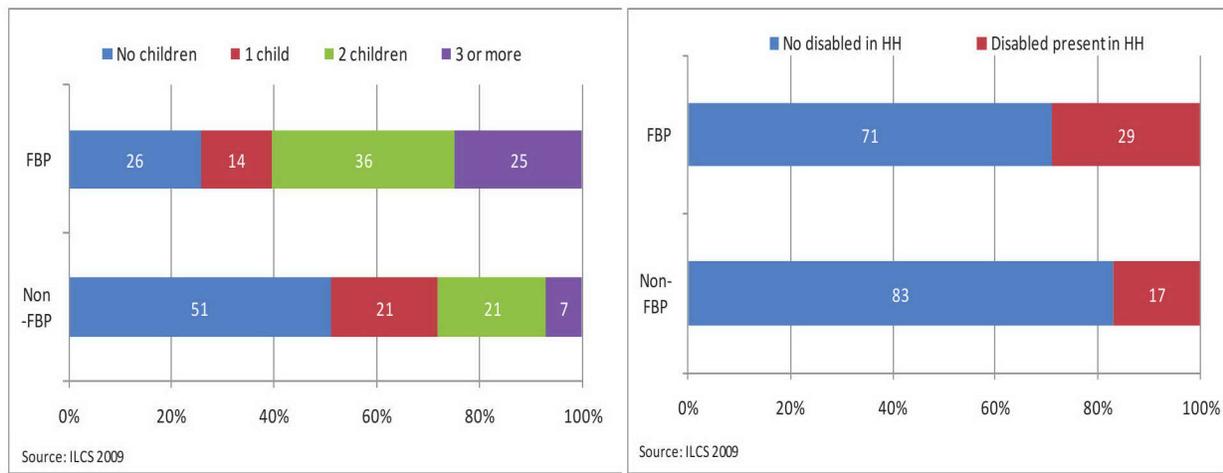
Main Findings

2. ***Overall Message.*** The results of the study suggest an absence of any significant disincentives from FBP on labor supply. However, as with any social assistance program, the effect of the FBP on labor disincentives should be closely monitored in the future—particularly if any changes are made in the design of or the size of the transfer from the program. International experience suggests several design features that can help to avert potential negative impacts of social assistance on labor supply. These include: (i) a reduction in marginal tax rates on earnings; (ii) a phased withdrawal of program benefits; and (iii) a facilitated reapplication process for individuals graduating from the program.

3. ***FBP families have fewer able-bodied working-age individuals and a higher dependency ratio than a typical Armenian household.*** On average, FBP families have more children and more disabled and elderly members than non-FBP families. About 60% of FBP families have two or more children, and 25% have three or more children (Figure A). This far outweighs the share of families with multiple children in the non-beneficiary population. About 30% of FBP households contain at least one disabled person, which is almost twice the share of the disabled in non-FBP households. As a result, beneficiary families have more dependents per able-bodied working-age member than non-beneficiary households.

4. *Because the FBP is largely targeted at families with children, disabled, and elderly persons, the study team needed to account for the fact that a certain number of households would require a stay-at-home caretaker.* In the absence of outside options for quality child care and long-term care for those households, the team recognized that it would be necessary for at least one working-age able-bodied family member to stay at home as a caretaker for the dependents. This further reduced the number of beneficiaries who could be expected to participate in the labor force.

Figure 1: FBP Households have More Children and Disabled Persons



5. *The study team found that less than 18% of all members of FBP families were able-bodied, of working age, and could be expected to work.* In 2009, there were a total of 372,612 FBP recipients in Armenia. From that total, the study team subtracted the total number of: (i) children; (ii) disabled persons; (iii) pensioners; (iv) persons who belonged to other non-working social groups—such as students on stipends, pregnant women, and early pensioners; and (v) persons who were in school or training. At that point, the study team had come up with a total of 127,339 persons who could be expected to participate in the labor force. Next, the team calculated how many working-age family members would likely have to take on the role of caretaker, as discussed above. After netting out the assigned caretakers, there were a total of only 66,623-78,209 members of FBP families who could be expected to work (Table A). In other words, the number of FBP beneficiaries who could be expected to work was less than 1 in 5 of all beneficiaries, or about 2% of the Armenian population.

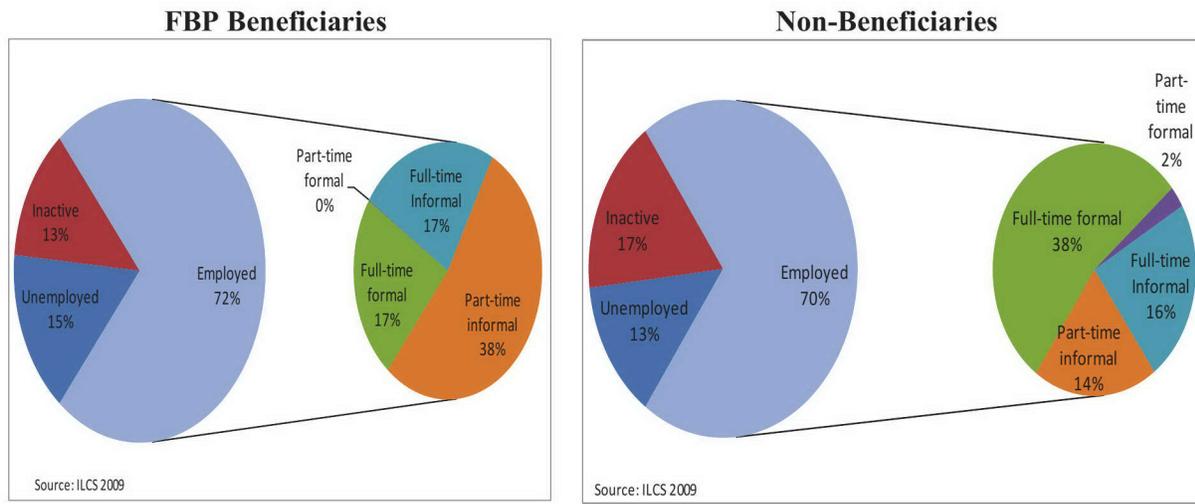
Table 1: Members of FBP Families who could be Expected to Work

	<i>Adjustments</i>	<i>Remainder</i>		
		<i>Number</i>	<i>%, FBP beneficiaries</i>	<i>%, Armenia population</i>
Total FBP Beneficiaries		372,612	100	12.2
<i>Accounting for non-working members:</i>				
- Non able-bodied / non-working-age adults	219,610	153,002	41.1	5
- Those belonging to other non-working social groups	10,421	142,581	38.3	4.7
- Those in school or training	15,242	127,339	34.2	4.2
<i>Accounting for stay-at-home caretaker in families with children or disabled members:</i>				
- Able-bodied working-age caretaker	60,716	66,623	17.9	2.2

Source: ILCS 2009

6. *The labor market characteristics of beneficiary family members who could be expected to work were quite similar to those of identically defined non-beneficiaries.* The two groups had similar rates of employment, unemployment, and inactivity. It did appear, however, that working-age able-bodied members of FBP families were more likely to be working in part-time and informal employment (Figure B). Working-age able-bodied members of FBP families also have a lower educational attainment than non-beneficiaries. The median beneficiary has completed secondary education, while the median non-beneficiary has a post-secondary vocational or technical degree. Non-beneficiaries with the same level of educational attainment as the median beneficiary had comparable employability as the beneficiaries. Therefore, there were no significant differences between similarly defined working-age able-bodied beneficiaries and non-beneficiaries in terms of their labor force participation. Moreover, the size of the FBP transfer was not large enough to discourage work.

Figure 2: Labor Market Status of Individuals who could be Expected to Work, by FBP Status



7. *The receipt of remittances has a negative effect on labor supply—but the incidence of remittances among FBP families is very low.* About 18% of Armenian households reported receiving remittances in 2009. Remittances reached only 13% of individuals who could be expected to work, and only 10% of FBP beneficiaries who could be expected to work. In terms of labor market outcomes, receiving remittances decreases the labor force participation and increases the probability of working part-time conditional on employment. FBP recipients who receive remittances are less likely to be employed than non-beneficiaries who receive remittances—but also less likely to be inactive. Remittance-receiving FBP beneficiaries are twice as likely to be unemployed (about 40%) than similarly-defined non-beneficiaries receiving remittances. The part-time employment and informality rates among FBP families are roughly the same as those for families receiving remittances.

8. *The empirical analysis using different impact evaluation tools overwhelmingly supported and reinforced the findings of the descriptive results.* The empirical analysis showed that the FBP does not create significant disincentives for participation in the labor force or for working in the formal sector. There is some evidence of potential negative impact on hours worked—but only for rural workers.

I. Introduction

Rationale and Objective

1. *The Government of Armenia (GOA) has expressed concerns over the potential work disincentives effects of its social assistance programs.* The most important of these programs is the Family Benefit Program (FBP). This program was established in 1999, after Armenia consolidated several Soviet-era categorically-targeted programs into a single cash-based and targeted social safety net. The program accords priority to poor and vulnerable social groups, such as the elderly, persons with disabilities, and families with children. The FBP achieves a good targeting performance—about 72% of the program resources go to the poor. However, the program covers less than one-third of the poor and about 12% of the population. It is also used—along with pensions—as a vehicle for delivering additional income support to those persons who suffer temporary economic shocks, such as the recent global recession, or utility price hikes. The GOA considers maintaining a robust social safety net to be crucial—at the same time, the GOA recognizes the importance of ensuring that these programs do not discourage its citizens from searching for self-reliant income-generating opportunities and actively participating in their own—and in Armenia’s—growth and development.

2. *This note aimed to respond to the GOA’s request and to assess the extent of work disincentives in the FBP.* The analysis herein was in part based on the findings of a World Bank mission in Armenia on November 15-22, 2010. First, the study team briefly reviewed international evidence—from both developed and developing countries—on the work disincentive impacts of similarly designed social assistance programs. Second, it compared the demographic profile of FBP beneficiaries to that of non-beneficiaries—it identified individuals who could be expected to work and appraised their labor market opportunities and outcomes. Third, it looked at the size of the FBP transfer in relation to the prevailing minimum wage, average wage, poverty line, and average consumption expenditures of Armenian households—and thereby investigated whether FBP beneficiaries could survive on the benefit alone, and whether it is possible to substitute between wage employment and the FBP. Fourth, it examined the FBP targeting mechanism in order to identify any potential—even if unintentional—negative impacts on work incentives. Fifth, it used a rigorous empirical analysis to estimate the magnitude of any potential work disincentives created by the FBP.

Background

3. *Armenia has a long record of social protection programs and institutional arrangements, dating back to the Soviet era.* Social protection programs—both contributory (i.e. social insurance) and non-contributory (i.e. social assistance)—play an important role in

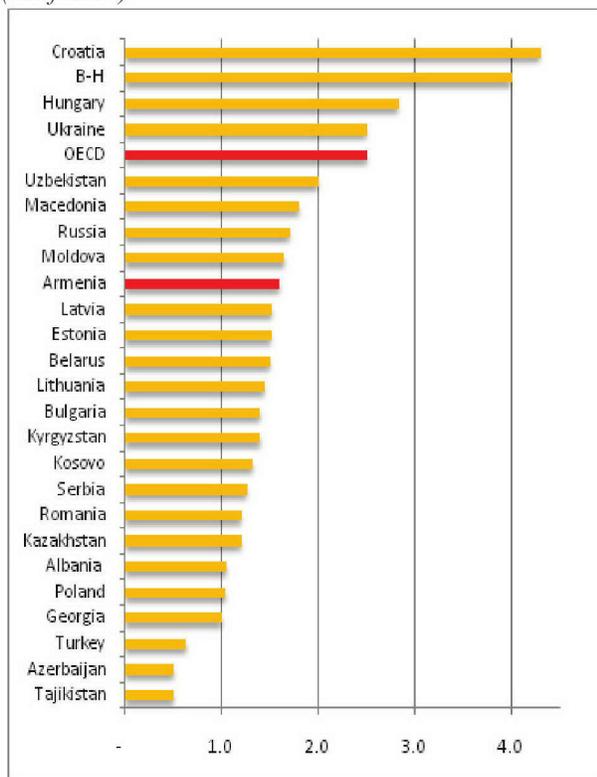
helping individuals and families cope with income shocks, and in providing old-age security. These programs are also used as vehicles for delivering temporary support to those who suffer transient economic shocks, such as during the recent global recession, gas tariff increases, and other hardships that overwhelm individuals' and households' own risk management and coping strategies. In Armenia, the contributory social insurance benefits include pensions and unemployment insurance, and are conditioned on formal employment and contribution compliance. In addition to contributory pensions, the pension system allows for the provision of several types of non-work-related pensions, such as survivor's pension, civil and military disability pension, old-age social pension, pension for special merits, social disability pension, and personal pension.

4. ***The GOA is cognizant of the importance of a well-functioning social safety net system to assist the poor and vulnerable—therefore it also maintains an elaborate non-contributory social assistance system.*** In the late 1990s, Armenia reformed its non-contributory social assistance system in response to the need for a simple, affordable, and well-targeted social safety net. Several Soviet-era categorically-targeted programs were integrated. The result was a single cash-based social safety net system that accords priority to the very poor and the most vulnerable social groups such as the elderly, persons with disabilities, and poor families with multiple children. These changes resulted in the launching of the Family Benefit Program (FBP), which is Armenia's signature last-resort social safety net program. The FBP was introduced in 1999 in order to assist individuals and families that fell below a certain income level. This program is means-tested on income and other proxies for poverty risk factors. Targeting of the FBP is done using the household poverty and vulnerability scoring formula (see Section IV). The scoring formula ranks applicants in terms of their expected poverty. It gives preference to certain social groups, such as the disabled, single mothers, orphans, and families with multiple children. In addition to the FBP, there are other small social assistance programs and benefits. These include universal cash transfers to expectant mothers and working mothers with infants below the age of two, free access to healthcare for the poor, and social care services.

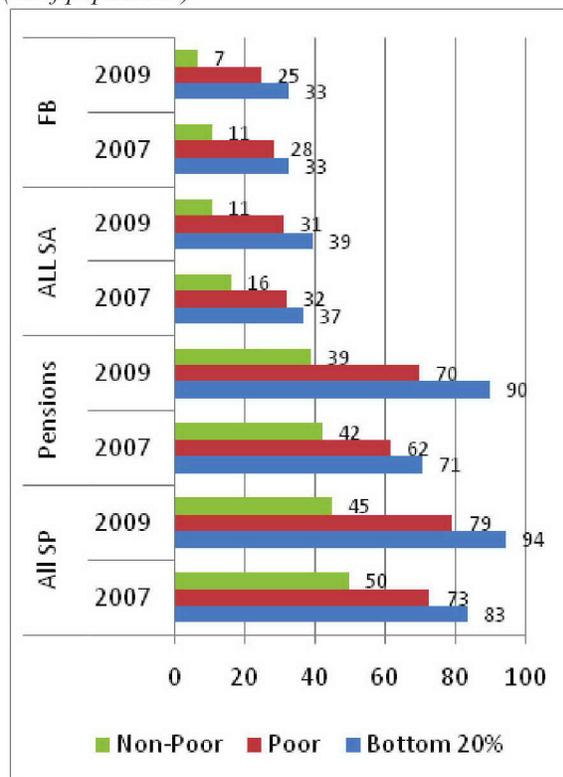
5. ***In 2009, Armenia spent about 6.8% of GDP on social protection programs.*** That was a substantial increase from the levels in 2007 (4.8%) and 2008 (5.8%), as the GOA took steps to mitigate the impact of the global economic crisis. Pension spending rose from 3.1% to 5.6% of GDP from 2007 to 2009—driven primarily by a 60% increase in pension payments in 2008. In terms of non-contributory social assistance programs (including the FBP, paid public works, unemployment benefits, and social care), Armenia spent about 1.8% of GDP in 2009. Armenia's spending on social assistance as a share of GDP is slightly higher than the Europe and Central Asia (ECA) average of 1.7%, but smaller than the 2.5% average for the Organization for Economic Co-operation and Development (OECD) countries (Figure 3, left panel). Armenia's social protection programs reach about 60% of the total population: among these programs, pensions have the highest coverage (51%); the FBP reaches around 12% of the total population.

Figure 3: Public Spending on Social Assistance Programs and their Coverage of the Population

Public Spending on Social Assistance Programs
(% of GDP)



Coverage of the Social Protection Programs
(% of population)



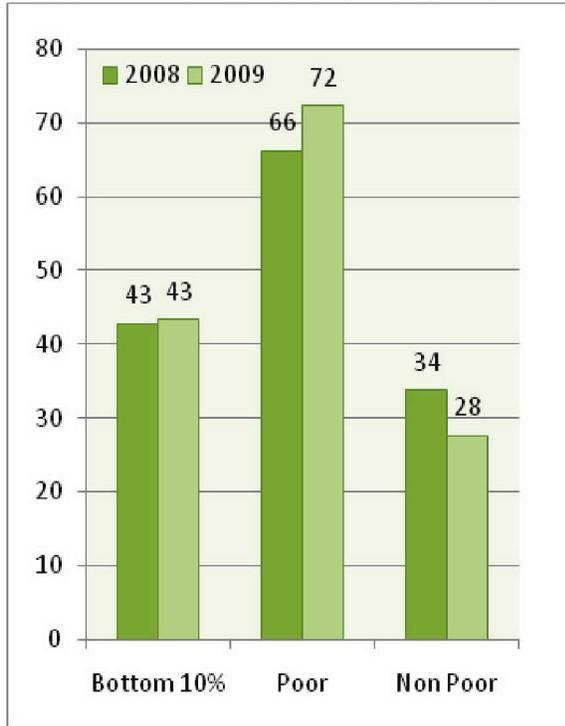
Source: National Statistical Services (NSS) data for Armenia, 2009; various World Bank Public Expenditure Reviews and OECD Social Spending Database for other countries.

6. *The overall coverage of the poor and the bottom 20% of the population by Armenia's social protection programs is impressive.* In 2009, these programs covered 94% of the poorest 20% of the population and 79% of the poor—an increase of 11 and 6 percentage points from the coverage rate of the respective groups in 2007 (Figure 3, right panel). Although the pension system was not designed as an anti-poverty program, it nevertheless covers a large share of the poor. In 2009, it covered 70% of the poor and 91% of the extremely poor—both significant improvements over the 2007 coverage rates. The FBP achieves a good targeting performance, but it covers a small share of Armenia's poor. In 2009, about 72% of FBP resources went to the poor, making it one of the well-targeted programs in the ECA region (Figure 4, left panel). Unfortunately, the certification process imposes a significant burden on families in terms of the time and effort involved in gathering all of the required documents. Many poor households cannot, or believe they cannot, provide the required documentation—thus, they give up on the application process. This is one of the main root causes of the FBP's low (and deteriorating) coverage of the poor (Figure 4, right panel).

Figure 4: The FBP is Well-Targeted, but its Coverage of the Poor is Low

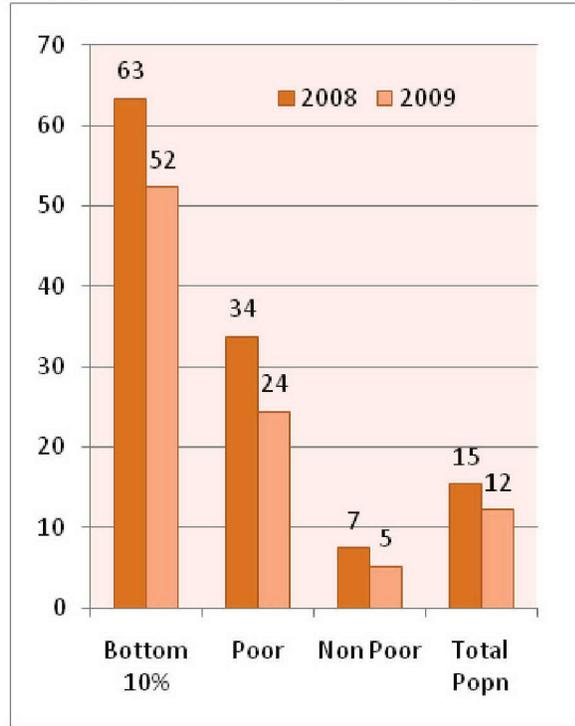
Targeting Performance

(% of FBP resources going to different groups)



Coverage

(% of different groups receiving FBP benefit)



Source: ILCS 2008 and 2009

7. *Notwithstanding their significant contributions to poverty reduction and risk management, Armenia's social protection programs face several challenges.* First, the system is costly and has grown costlier over the course of time, which raises concerns over its fiscal sustainability and efficiency. Second, there is a large overlap between beneficiaries of different programs. In 2009, for example, over 60% of FBP beneficiaries also received pensions. Since pension income counts negatively towards FBP eligibility, *ad hoc* increases in nominal pensions cause problems for certain families: even a small increase in the pension transfer can make an FBP family cross the FBP eligibility threshold score, thereby displacing a relatively larger FBP transfer. Third, as stated in the beginning of the note, there are growing concerns about the potential for a dependency mentality created by the non-contributory programs.

Data

8. *Armenia's Integrated Living Conditions Surveys (ILCSs) are the note's main sources of data.* The Armenian ILCS is a representative sample of about 2,000 households surveyed each quarter, for a total of about 8,000 households each year. It contains detailed information on household composition, education, health, the labor market, migration, agriculture, income, public and private transfers, expenditures, savings and debt, and the subjective perceptions of individuals and households. Although yet to be exploited, the team also has access to the database of FBP beneficiaries and applicants, registered unemployed, and participants in active labor market programs.

II. International Evidence on Work Disincentives

9. ***The empirical literature on the relationship between social assistance programs and work disincentives is vast, but most of the evidence comes from the developed countries.*** The evidence from the OECD countries suggests that generous social assistance benefits can substantially reduce the employment probability of certain types of workers.¹ A meta-analysis was performed recently of 16 studies investigating the impact of social assistance programs on the employment of the disabled in five high-income countries (UK, Canada, Norway, Sweden, and Denmark). The analysis revealed that the majority of the studies found no evidence of work disincentives resulting from changes in the eligibility criteria. Only one study found that relaxed eligibility criteria were associated with decline in the employment rate among older men. On the other hand, benefit size was found to be a key determinant of labor force participation in the OECD countries: eight out of eleven studies reported a negative association between benefit size and labor force participation decisions. The studies suggest that if benefit sizes are close to wage rates in low-paid jobs, beneficiaries may find little financial incentive to work. Moreover, even when a modest gain can be made from moving into employment, beneficiaries may see strong benefits in retaining the more secure income flow offered by the social assistance program.² Thus, *setting the optimal benefit size is a key tool* for policymakers in balancing the adequacy of social assistance transfers and the beneficiaries' incentives to work.

10. ***There is some evidence that social assistance programs may create disincentives to participate in the formal labor market, while increasing incentives for informal employment.*** Informal labor earnings are not subject to payroll taxes, and may not be reported at all to the authorities determining benefit eligibility. In cases where there was evidence of work disincentives, researchers have attempted to determine whether the negative labor supply response is due to a reduction in hours worked or the probability of labor force participation.³ The evidence from the U.S. suggests that much of the labor supply response by low-income earners is through the latter channel.⁴

11. ***Empirical evidence from developing countries on social assistance programs' effects on labor force participation and work effort is scarce.*** The few existing studies do not indicate significant work disincentives from social assistance programs. In an *ex ante* micro-simulation study of Brazil's 'Bolsa Escola' program, the income effect of the transfers on adult labor supply was found to be negligible.⁵ A similar investigation of the conditional cash transfers under Mexico's PROGRESA program showed no significant effect on adult labor supply choices.⁶ A recent compilation of the impacts of conditional cash transfer programs worldwide found no evidence of reduced work effort by adults.⁷ Similarly, studies

¹ Lemieux & Milligan, 2004; Barr et al., 2010.

² Adema, 2006.

³ Heckman, 1993; Dabalén et al., 2008.

⁴ Eissa & Liebman, 1996; Meyer & Rosenbaum, 2001; Eissa & Hoynes, 2004; Eissa et al., 2004.

⁵ Bourguignon et al., 2003.

⁶ Freije et al., 2006; Skoufias & Di Maro, 2008.

⁷ Fiszbein & Schady, 2009.

in Africa show that social assistance programs have modest or no negative effect on work effort.⁸

12. ***Evidence from developing countries on incentives for informal sector employment from social assistance programs is similarly scarce and mixed.*** For example—despite the fact that Turkey’s Green Card is a generous program—a recent World Bank study showed that the substantial gap between formal and informal wages implied that low-wage informal workers would move to formal jobs even if such decision resulted in the loss of Green Card benefits.⁹ On the other hand, studies from various Latin American countries including Mexico, Colombia, and Argentina, show that social assistance programs may result in increased informality.¹⁰

13. ***In summary, the existing international empirical evidence—while not conclusive—sheds light on which aspects of social assistance programs are most relevant when trying to assess the effects of those programs on work disincentives.*** The evidence indicates that it is particularly valuable to look at the following:

- The demographic profile of program beneficiaries (in evaluating the potential for activation);
- The size of the benefit in relation to the prevailing wages in the relevant labor market;
- The benefit design features, such as the targeting mechanism used in benefit assignment.

⁸ Adato & Hoddinott, 2008.

⁹ Angel-Urdinola et al., 2009.

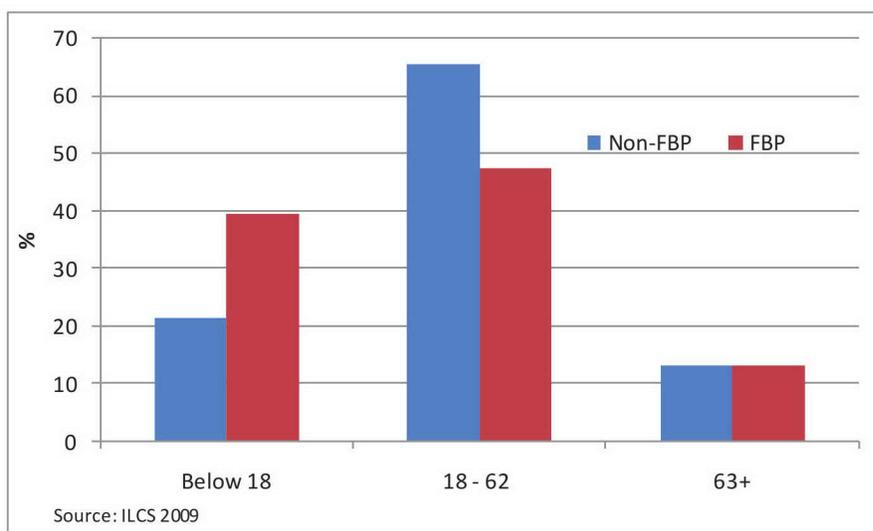
¹⁰ Mason, 2007; Gasparini et al. 2007.

III. Profile of FBP Beneficiaries

14. *This section provides the profile of members of the FBP beneficiary families in an attempt to determine the size of the able-bodied working-age adult population whose labor supply behavior may be affected by this targeted social assistance program.* The data comes from the 2009 ILCS.

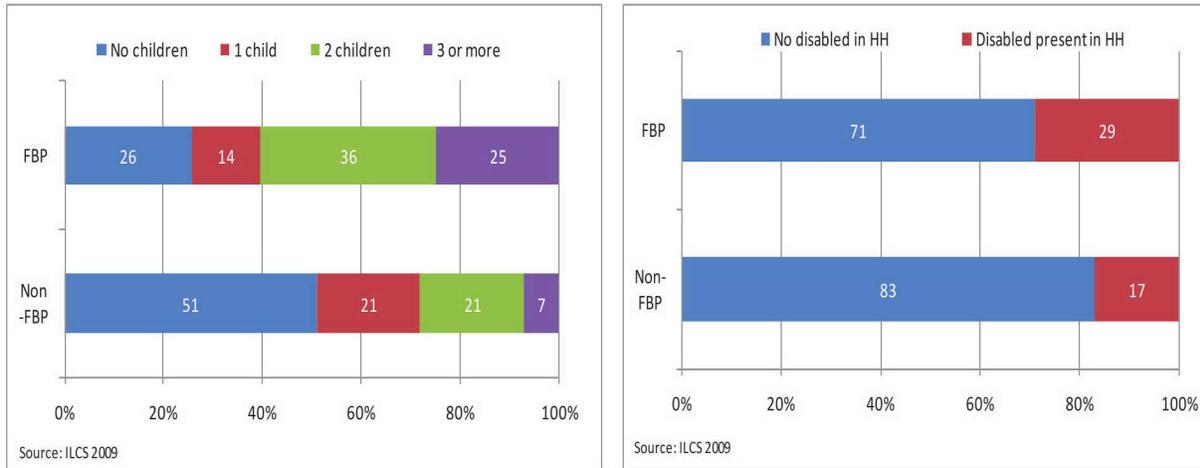
15. *Less than half of all members of FBP families are of working age.* This is to be expected, because the FBP is primarily targeted at families with children, disabled persons, and elderly persons. Almost 40% of all beneficiaries are below the age of 18 (Figure 5); another 13% are of pension age.

Figure 5: Less than Half of all FBP Beneficiaries are of Working Age



16. *Households with children and disabled persons are overrepresented in the FBP.* About 60% of Family Benefit households have two or more children; 25% have three or more children (Figure 6). This far outweighs the share of families with multiple children in the non-beneficiary population of Armenia. This is yet another indication of how effectively the FBP is targeted to children. About 13.6% of all FBP households have infants under the age of two; 28% have children aged three to seven; 58.5% have children aged eight to 18. The disabled are also explicitly targeted by the FBP—through their inclusion in vulnerable social groups and the number of household members incapable of working. About 30% of FBP households contain at least one disabled person, which is almost twice the share of the disabled in non-FBP households.

Figure 6: FBP Households have More Children and Disabled Persons



17. *Thus, FBP families have fewer able-bodied working-age individuals and a higher dependency ratio than the average Armenian household.* About one-fifth of all households receiving the benefit do not have any working-age able-bodied members; another 17% have only one (Figure 7). Therefore, FBP families have higher dependency ratios than other Armenian households (Figure 8). This implies a lower potential for activation of members of the families participating in the FBP.

Figure 7: FBP Households have Fewer Working-Age Able-Bodied Members

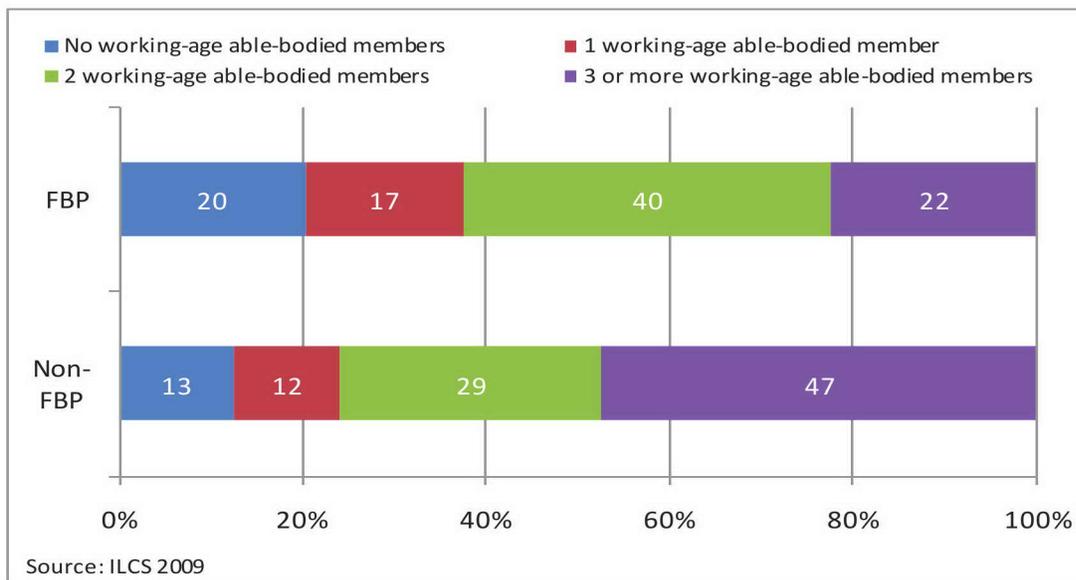
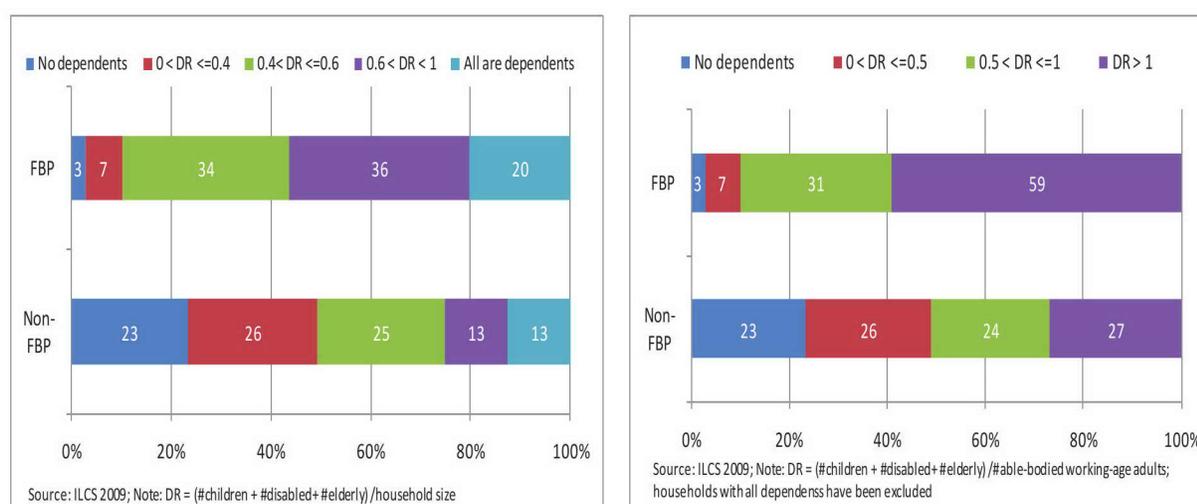


Figure 8: FBP Households have Higher Dependency Rates



18. *In order to effectively evaluate the FBP's effects on labor disincentives, the study team needed to quantify the number of program beneficiaries who could be expected to work in the year 2009.* This involved looking at different characteristics of FBP family members. The process required several steps. First, the team subtracted the total number of children, disabled persons, and pensioners from the total number of FBP family members in Armenia. Next, the team subtracted the total number of individuals who belonged to other non-working social groups, such as students on stipends, pregnant women, and early pensioners. Then, the team subtracted the total number of persons who were in school or training. At that point, the study team had come up with a total of 127,339 persons who could be expected to participate in the labor force out of a total of 372,612 members of FBP families (see Table 2).

Table 2: Members of FBP Beneficiary Families who could be Expected to Work

	<i>Adjustments</i>	<i>Remainder</i>		
		<i>Number</i>	<i>Percent, FBP beneficiaries</i>	<i>Percent, Armenia Population</i>
Total FBP Beneficiaries		372,612	100.0	12.2
<i>Accounting for non-working members:</i>				
- Non-able-bodied / non-working-age adults	219,610	153,002	41.1	5.0
- Those belonging to other non-working social groups	10,421	142,581	38.3	4.7
- Those in school or training	15,242	127,339	34.2	4.2
<i>Accounting for stay-at-home caretaker in families with children or disabled members:</i>				
- Able-bodied caretaker who	49,045	78,294	21.0	2.6

can be elderly				
- Able-bodied working-age caretaker	60,716	66,623	17.9	2.2

Source: ILCS 2009

19. ***Because the FBP is largely targeted to families with children and disabled persons, the study team needed to account for the fact that a certain number of households would require a stay-at-home caretaker.*** In the absence of outside options for quality child care and long-term care for those households, the team recognized that it would be necessary for at least one able-bodied family member to stay at home as a caretaker for the dependents. That meant that a certain number of the 127,339 members of FBP families who were able-bodied—and would otherwise have been expected to work—would need to stay out of the labor force in order to take on the role of caretaker. The team considered two scenarios: in the first, an elderly person would be able to be the caretaker; in the second, only a working-age adult (18-62 years) would be capable of handling that household’s specific caretaker responsibilities. The team believed that a household would make the choice of which family member would become the caretaker on the basis of maximizing the household’s total earning potential. Thus, if a given household already had an inactive person who could qualify as the caretaker, the team—in making its calculations—would assign the status of caretaker to that person. If a given household had no inactive able-bodied (working-age) adults, the team attempted to determine which family member would generate the least income. There are any number of different ways to make that calculation. The team decided to assign caretakers in the following order: (i) an inactive person; (ii) an unemployed person; (iii) an informally employed person; (iv) a female worker; and (v) a male worker. After netting out the assigned caretakers, there were a total of only 66,623-78,209 members of FBP families who could be expected to work.¹¹

20. ***The labor market status of those members of FBP families who could be expected to work is similar to that of identically defined non-beneficiaries.*** Table 2 compares the labor market status of FBP beneficiaries who could be expected to work to the labor market status of similarly defined non-beneficiaries (i.e. able-bodied working-age individuals, not in school or pregnant, or receiving pensions, and not assigned to be stay-at-home caretakers). The two groups have similar levels of employment, unemployment, and inactivity.

Table 3: Labor Market Characteristics of FBP Beneficiaries and Non-beneficiaries who could be Expected to Work

	<i>Percent of Individuals Who Could Be Expected to Work</i>	
	<i>FBP</i>	<i>Non-FBP</i>
Employed, of which:	72.0	69.6
- Part time main job	53.2	22.6
- Informal main job	76.7	43.2

¹¹ From this point on, for compactness, we present results only for the sample with working-age caretakers assigned. However, all results are robust to the other two definitions.

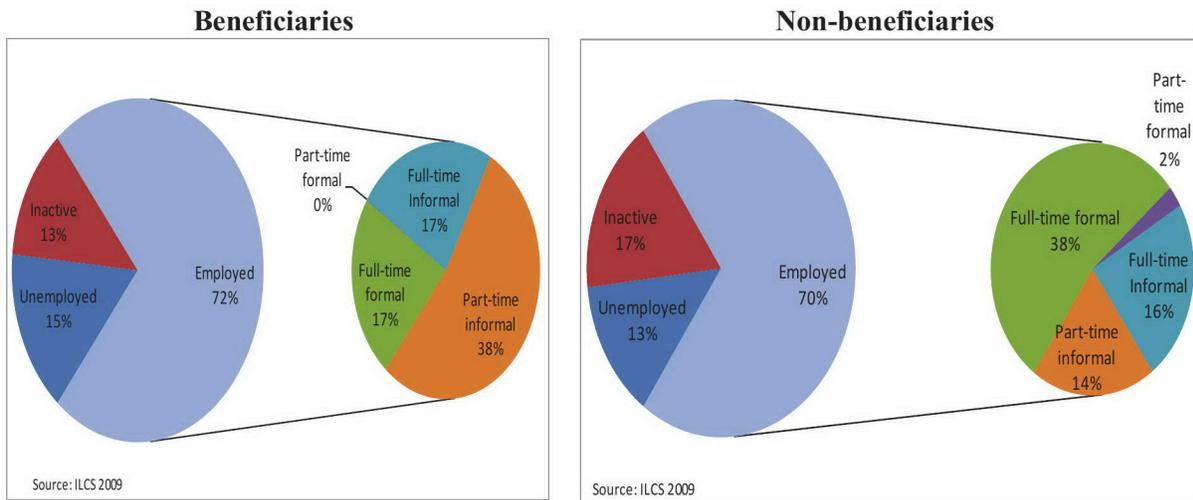
- Non-agricultural main job, of which:	35.7	69.9
- Part time	10.3	7.0
- Informal	38.6	19.6
Unemployed	15.5	13.4
Inactive	12.5	17.0
Total	100	100
	<i>Mean Actual Hours Worked (main job and secondary job)</i>	
	<i>FBP</i>	<i>Non-FBP</i>
All Employed	33.0	40.9
Non-agricultural employees	49.3	47.8

Source: ILCS 2009

21. ***However, members of FBP families appear more likely to be working part-time and in the informal sector.***¹² Figure 7 reveals that there are significant differences in the types of employment of FBP and non-FBP family members. Almost 40% of working non-FBP family members are engaged in the most stable type of employment—i.e., full-time work in the formal sector. By contrast, only 17% of working FBP family members are engaged in full-time work in the formal sector—and 40% are engaged in the most unstable and lowest paid part-time and informal employment. These results hold even when one looks at non-agricultural employment (Table 3). Interestingly, when one observes the actual hours worked in both main and secondary jobs, the work effort of non-agricultural employees is similar for beneficiary and non-beneficiary workers.

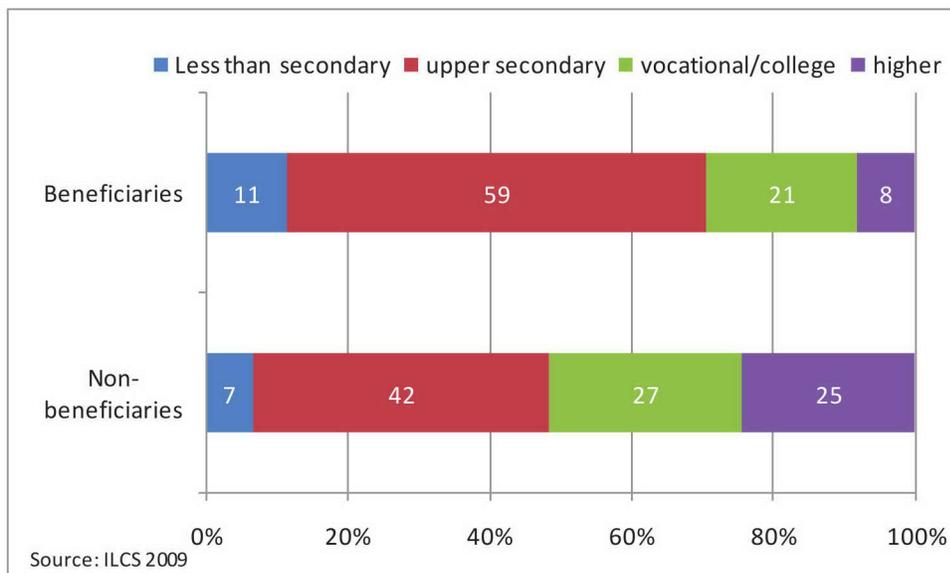
¹² Informal employment is defined as employees without a written contract or self-employed individuals involved in an unregistered activity.

Figure 9: Labor Market Status of Individuals who could be Expected to Work, by FBP Status



22. *FBP beneficiaries who could be expected to work appear to have lower education attainment than similarly defined non-beneficiaries.* The educational attainment of the beneficiaries is somewhat lower than that of identically defined non-beneficiaries, pointing to the former’s poorer labor market opportunities (Figure 10). The median FBP beneficiary has completed secondary education, while the median non-beneficiary has a post-secondary vocational/technical degree.

Figure 10: FBP Recipients who could be Expected to Work have Lower Educational Attainment



23. *Because of their lower educational attainment, members of FBP families would be expected to have, on average, lower employability than their non-FBP counterparts.* This hypothesis can be tested by comparing the labor market outcomes of all non-beneficiaries to the labor outcomes of those non-beneficiaries whose educational attainment resembles that of the median beneficiary family members (i.e. those who only completed a secondary education). As becomes evident from Table 4 below, non-beneficiaries with only a secondary education are less likely to be employed and more likely to be inactive than the average non-beneficiary. When employed, non-beneficiaries with a secondary education are more likely to be working part-time or in the informal sector than the average non-beneficiary. Notably, about one-third of all non-beneficiaries worked part-time, because they could not find a full-time job: thus, labor demand appears to have been a constraint in Armenia in 2009. Non-beneficiaries with only a secondary education are less likely to work in the services sector, and more likely to work in agriculture and construction (and, in urban areas, industry). Also, non-beneficiaries with only secondary education have lower than average wages.

Table 4: Labor Market Outcomes of Non-Beneficiaries with the Educational Attainment of Median Working-Age Beneficiaries

	<i>Urban</i>		<i>Rural</i>	
	<i>All non-FBP</i>	<i>Non-FBP with secondary education</i>	<i>All non-FBP</i>	<i>Non-FBP with secondary education</i>
<u>Labor Market Status</u>				
Employed (% of working-age), of which:	62	54	84	82
- Part time (% of employed), of which:	10	11	42	46
- Could not find a full-time job (% of part-time employed)	34	37	33	34
- Informal (% of employed)	21	36	76	86
Unemployed (% of working-age)	17	20	6	6
Inactive (% of working-age)	20	26	10	12
<u>Sector of employment</u>				
Agriculture (% of employed)	5	8	68	77
Industry (% of employed)	17	22	5	4
Construction (% of employed)	11	15	6	8
Services (% of employed)	68	56	20	12
<u>Average monthly wage (AMD)</u>	66,707	55,111	33,438	24,085

Source: ILCS 2009

24. *FBP beneficiaries' higher probability of working in the informal sector is not likely to be a matter of choice, since formal workers earn much higher wages than informal workers.* Overall, informal wages are only slightly more than one-quarter of formal salaries (**Error! Reference source not found.**). The disparity between formal and informal wages is reater for women than for men—and greater in rural areas than in urban areas. The breakdown by sector reveals that the formality premium is highest in agriculture, and lowest in construction.

Table 5: Wage Rates in the Formal and Informal Sectors

	<i>Formal monthly wages (AMD)</i>	<i>Informal monthly wages (AMD)</i>	<i>Informal, as % of formal</i>
Total	74,055	20,905	28
Male	87,797	27,041	31
Female	57,256	10,100	18
Urban	76,414	45,097	59
Rural	63,320	6,753	11
Agriculture	61,218	1,699	3
Industry	76,934	42,838	56
Construction	94,343	63,451	67
Services	71,925	39,025	54

Source: ILCS 2009

25. *The receipt of remittances has a negative effect on labor supply—but the incidence of remittances among FBP families is very low.* About 18% of Armenian households receive remittance payments. Remittances reach only 13% of individuals who could be expected to work, and only 10% of FBP beneficiaries who could be expected to work (Table 6). Moreover, the monthly per capita amount of remittances reaching FBP beneficiaries (770 AMD) is nearly half of the amount reaching non-beneficiaries (1,450 AMD). In terms of labor market outcomes, receiving remittances decreases labor force participation and increases the probability of working part-time conditional on employment. This result is consistent with most of the prior literature (e.g., Funkhouser, Rodriquez and Tiongson 2001). FBP recipients who receive remittances are less likely to be employed than non-beneficiaries who receive remittances—but also less likely to be inactive. In other words, surprisingly, remittance-receiving FBP beneficiaries are twice as likely to be unemployed (about 40%) than similarly-defined non-beneficiaries receiving remittances. The ratio of part-time or informal employment of FBP recipients to non-recipients is roughly the same for those who receive remittances and those who do not receive remittances. However, these results should be interpreted with caution, because they are based on an extremely small sample of remittance-receiving FBP individuals who could be expected to work (Table 6, last row).

Table 6: Remittances and Labor Market Characteristics of Individuals who could be Expected to Work, by FBP Status

	<i>No remittances</i>		<i>All remittances</i>		<i>External remittances</i>	
	<i>FBP</i>	<i>Non-FBP</i>	<i>FBP</i>	<i>Non-FBP</i>	<i>FBP</i>	<i>Non-FBP</i>
Percent of individuals who could be expected to work	90.1	87.4	9.9	12.6	8.0	10.1
Labor Market Status:						
- Employed (%), of which:	75.2	72.0	42.9	53.6	41.7	54.2
- Part time (%)	52.6	21.5	63.6	29.9	68.5	30.5
- Informal (%)	76.5	42.0	80.2	50.5	77.0	52.0
- Unemployed (%)	12.8	12.0	40.2	22.6	40.0	20.7
- Inactive (%)	12.05	16.0	16.9	23.8	18.3	25.1
Number of observations in the ILCS (2009) sample	819	9,518	84	1,509	64	1,286

Source: ILCS 2009

26. *In brief, the profile of FBP family members shows that there are no significant differences between FBP and non-FBP individuals in terms of their overall labor force participation.* However, members of FBP families are more likely to work part-time and in the informal sector. The descriptive findings above do not account for many factors that can have a significant bearing on an individual's employability, such as education level and age, or local labor market conditions. More rigorous analysis would be needed to estimate the impact of the FBP on labor incentives among those beneficiaries who could be expected to work. Section IV presents approaches of evaluation that are more empirically demanding.

27. *The FBP transfer is not sufficient to provide adequate means of livelihood on its own.* This section concludes by assessing whether the amount of the FBP transfer is large enough to discourage work. Table 7 shows the amount of FBP transfer in relation to household consumption expenditures per adult equivalent. Nationally, the FBP transfer is only about 16% of household consumption (conditional on receiving the benefit). Even for the first and second consumption quintiles, the transfer amounts to only about 33% and 23%, respectively, of household consumption expenditures per adult equivalent. Because even the poorest households end up consuming much more than this transfer, the benefit size appears to be too modest to provide adequate means of livelihood for beneficiary families.

Table 7: The FBP Benefit as a Share of Household Consumption

	<i>Share of Consumption Expenditure per adult equivalent</i>
<u>Location</u>	
Rural	15.8
Urban	16.1
<u>Quintiles</u>	
Quintile 1	33.4
Q2	22.9
Q3	19.2
Q4	15.6
Quintile 5	10.0
<u>Total</u>	<u>15.9</u>

Source: ILCS 2009

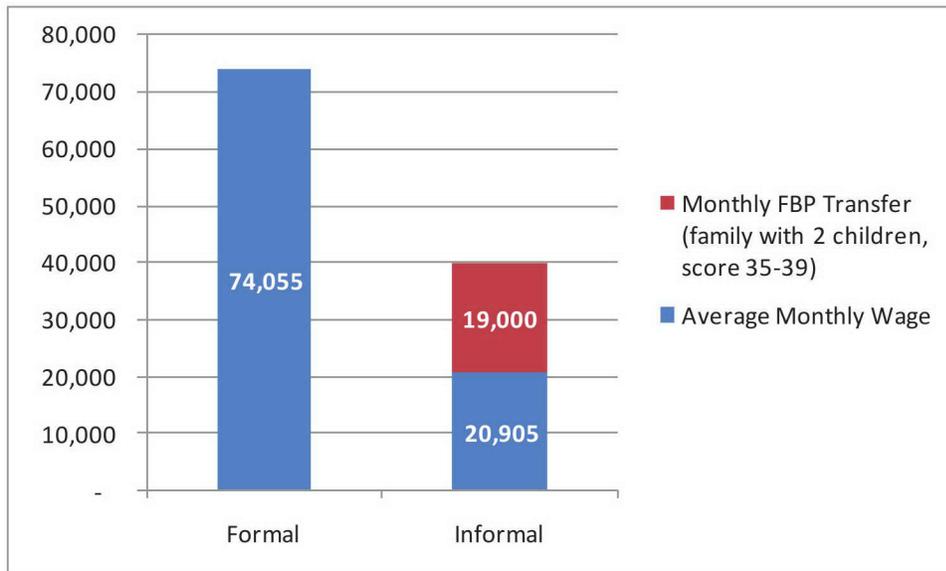
28. *The FBP transfer is a small fraction of the average wage and is substantially less than the minimum wage.* The base FBP transfer (AMD 8,000 per family) is about 11% of the average wage, 27% of the minimum wage, and 26% of the poverty line (Table 8). With top-ups for children and adjustments based on the vulnerability score, the size of the FBP transfer for a typical beneficiary family (e.g., 2 adults, 2 children, and vulnerability score of 35-39) is about AMD 19,000 per month. If one assumes a single-earner household with perfect intra-household allocation of income from any source, the household FBP transfer is about 26% of the average wage and 63% of the minimum wage. If, on the other hand, one thinks of labor income as an individual income flow, FBP benefit per capita for the median household would represent only 6% of the average wage and 16% of the minimum wage. The per capita FBP transfer is about 16% of the poverty line. Moreover, as can be seen in Figure 11, receipt of the FBP does not make up the difference between formal and informal wages. Therefore, the size of the FBP transfer is not large enough to discourage labor force participation or employment in the formal sector.

Table 8: FBP Benefit Size and Wages

	<i>Minimum flat benefit (families without children)</i>	<i>Median beneficiary household (2 adults, 2 children) with Vulnerability Score of:</i>		
		<i>30.01-35</i>	<i>35.01-39</i>	<i>39.01+</i>
		<i>30.01-35</i>	<i>35.01-39</i>	<i>39.01+</i>
Monthly Family Benefit (AMD)	8,000	18,000	19,000	20,000
Monthly per capita FB (AMD)	At most 8,000*	4,500	4,750	5,000
Family Benefit as a share of:				
Average wage (AMD 74,055)	11%	24%	26%	27%
Minimum wage (AMD 30,000)	27%	60%	63%	67%
Monthly per capita FB as a share of:				
Average wage (AMD 74,055)	At most 11%	6%	6%	7%
Minimum wage (AMD 30,000)	At most 27%	15%	16%	17%
Poverty Line (AMD 30,920)	At most 26%*	15%	16%	16%

Source: NSS and ILCS 2009

Figure 11: The FBP Transfer does not Compensate for the Formality Premium



IV. Empirical Estimation of Work Disincentives

29. *As noted in the previous section, in order to come up with a robust evaluation of the potential effect of the FBP on work disincentives and to corroborate the descriptive findings above, a more sophisticated empirical methodology is needed.* So far, we have analyzed the profile of FBP beneficiaries—isolating those individuals that could potentially be activated or encouraged to move to the formal sector. However, there are factors—such as education and local labor demand—that may influence both eligibility for (and participation in) the FBP and labor market status. This section begins by looking at the design features of the program—such as the eligibility criteria (how the benefit is assigned to the beneficiaries). Then, empirical impact evaluation tools (regression discontinuity, instrumental variables, and matching techniques) are employed to investigate the existence of work disincentives from participation in the FBP.

30. *Understanding the design of the FBP is essential for evaluating its work disincentives effects, and in the choice of an empirical approach.* A brief account of the FBP design is as follows: A family’s eligibility for the FBP depends on obtaining a sufficiently high vulnerability score, the calculation of which is specified in Armenia’s legislation and is based on the information and documentation submitted by the applicant family. The score is a product of several coefficients, of which some are numeric scores and others are automatic disqualifiers (see Box 1 for a description of the scoring formula). If the calculated score is at or above a certain threshold set by the legislation the family is considered to be eligible for the program and receives monthly cash payments (the threshold for 2009 was set at 30). If the score is below that threshold, the family is considered to be ineligible for that year.

Box 1: Armenia’s Family Benefit Eligibility Score Formula, as Applied in 2009

The following formula was applied for assessing the eligibility of Armenian families for the FBP:

$$P = P_{ave} \times K_{fam} \times K_t \times K_{rsd} \times K_{inc} \times K_c \times K_b \times K_{re} \times K_{cst} \times K_e \times K_{ph} \times K_{swa}$$

Where:

- P is the total score, which expresses a household’s level of vulnerability. The higher the score, the higher the vulnerability. For 2009, families with scores of 30 and above qualified for the monthly FBP payments.
- P_{ave} is the average value of the family’s social group score. The government has identified and assigned numeric scores to a number of vulnerable social groups—such as disabled persons, children, pensioners and pregnant women (see Annex Table A1.1 for details). Each individual can belong to up to three social groups, with the highest score taken at full value, the second-highest at 30%, and the third-highest at 10%. The individual social group scores are then averaged for the household.
- K_{fam} is the coefficient related to the number of work-incapable family members. It is calculated as $K_{fam} = 1.00 + 0.02 m$, where m is the number of family members who are

children, disabled persons of 1st or 2nd disability category, or unemployed working-age pensioners.

- K_t coefficient measures residence insecurity, based on the geographical area of residence. Its value can be either 1 (secure), 1.03 (insecure), or 1.05 (most insecure), and these values are set for each city or village by government decree.
- K_{rsd} evaluates family housing conditions, with houses or apartments given the value of 1, and progressively worse housing conditions given higher values (up to 1.2 for tents provided after an earthquake).
- K_{inc} is a coefficient for per capita family income. It is calculated based on family members' salaries and wages, pensions, and unemployment benefits, as well as the value of livestock (based on a set value per head) and the value of land (calculated in terms of cadastre value, net of paid land tax). This income is then averaged over the household, and the coefficient is calculated as $K_{inc} = 1.2 - 0.000033 * (\text{per capita income})$.

The rest of the coefficients are automatic disqualifiers (i.e. their value can be either 0 or 1):

- $K_c = 0$ if the household owns a motor vehicle.
- $K_b = 0$ if any member of the household is a participant (shareholder) of a limited liability company or enterprise, or is a shareholder/depositor of a trust or cooperative, or is engaged in formal entrepreneurial activities.
- $K_{re} = 0$ if any member of the family acquires real estate.
- $K_{cst} = 0$ if any member of the family pays customs duties on imports or exports.
- $K_e = 0$ if the electricity consumption of the family during summer months exceeds the specified maximum threshold.
- $K_{ph} = 0$ if the amount of the family's average inter-city telephone bills within any three consecutive months of a given year exceeds the specified maximum threshold.
- $K_{swa} = 0$ if a social worker making a home visit assesses the family as ineligible.

If the household's score qualifies it for the Family Benefit, the amount of the monthly transfer is determined in the following manner: Each household receives 8,000 AMD (the basic benefit). In addition, households with children qualify for the following per-child supplements, depending on the eligibility score (each of these amounts is increased by 500 AMD for families residing in mountainous areas or near borders):

Box Table. FBP Supplements per Child, by FBP Score and Number of Children

<i>Household Eligibility Score</i>	<i>3 children or less</i>	<i>4 children or more</i>
30.01-35.00	5,000 AMD	6,000 MD
35.01-39.00	5,500 AMD	6,500 AMD
39.01+	6,000 AMD	7,000 AMD

Source: Ministry of Labor and Social Issues, Republic of Armenia (MLSI).

31. ***One notable feature of the targeting formula, is that wage income obtained in the formal sector does not automatically disqualify an applicant household.*** Some social protection programs in other countries (such as Macedonia’s unemployment insurance or Turkey’s Green Card health benefits) are targeted to families without any formal income. This targeting mechanism can create disincentives for working in the formal sector. While Armenia’s FBP targeting formula includes formal income as a criterion, a household can theoretically remain eligible for the program even if it reports all family members earning a minimum wage. Of course, to maintain eligibility, higher wages would have to be offset by greater vulnerability in terms of social group composition and other targeting criteria.

32. ***In design settings with a cutoff score, regression discontinuity is considered the most appropriate evaluation method.*** The regression discontinuity design is an increasingly common methodology for evaluating program effects around the world. Its validity in the study of Armenia’s FBP depends on the following assumptions: (i) that families in the neighborhood of the threshold score (in the case of the FBP in 2009, those with the score of 29 or 31) are fairly similar to each other in terms of their underlying characteristics; and (ii) that families on one side of the threshold benefit from the program, and those on the other side do not. Therefore, the impact of the FBP can be assessed by comparing the labor market outcomes of able-bodied working-age FBP beneficiaries and non-beneficiaries whose scores are sufficiently close to the cutoff score.

33. ***The implementation of a regression discontinuity design for the evaluation of Armenia’s FBP was complicated by two issues.*** The first issue was data availability. Ideally, the analysis would have used data that contained eligibility scores as well as labor market variables for individuals (both FBP beneficiaries and non-beneficiaries) who could be expected to work. Unfortunately, the main data from the ILCS 2009 does not have the calculated scores—but fortunately, the survey is rich enough to allow us to *estimate* eligibility scores for the surveyed households.¹³ The second issue was that: (i) there were a number of households that did not receive the benefit despite the fact that they were judged to be eligible for the program based on the estimated score (i.e., under-coverage); and (ii) there were a number of households that did receive the benefit despite the fact that they were judged to be ineligible for the program based on the estimated score (i.e., leakage). In other words, some of the households above the threshold score *did not* receive the FBP transfer, and some of the households below the threshold score *did* receive the FBP transfer. In order to account for this problem, the study team implemented the so-called “fuzzy” regression discontinuity design, which adjusts the impact of the program by the size of the jump in the probability of receiving the FBP benefit around the threshold score. The main findings of the analysis are presented below.

34. ***There do not appear to be significant differences in inactivity, hours of work, or informal employment for persons around the FBP eligibility threshold.*** As can be observed

¹³ This household survey had reasonable proxies for most of the eligibility criteria described in Box 1. The only coefficients we were not able to include in the calculation were K_{est} , K_e , K_{ph} and K_{swa} . In terms of K_e , previous literature on the subject (e.g. Tumasyan 2006) suggests that the specified threshold for its calculation is too high for the vast majority of households; we checked this hypothesis for the subset of households surveyed in the summer, and this still appears to be the case.

in the upper panel of **Error! Reference source not found.** below, the rates of inactivity, hours worked, and the probability of informal employment are all quite similar for individuals who are right below the threshold score and individuals who are right above the threshold score. As can be observed in the lower panel of **Error! Reference source not found.**, the probability of receiving the FBP transfer does indeed jump at the threshold score, as can be seen in the lower panel of this figure. The actual estimate of the program impact divides the difference in the labor outcomes at the threshold by the difference in the probability of receiving the program at the threshold. These estimates—along with their significance levels—are presented in the Annex Table A1.2, column 5. The main result is similar to the one observed in the upper panel of **Error! Reference source not found.**: *the FBP does not appear to create any work disincentives.* It does not have significant impact on labor force participation, work effort, or informal employment.¹⁴

35. ***The findings hold true in both urban and rural areas, with one exception.*** There is a widespread perception in Armenia that labor disincentives from the FBP are higher in rural areas. This could potentially occur due to lower labor demand in rural areas, and higher value attached to cash-based transfers like the FBP in rural barter-based markets. Therefore, it is important to check whether the study results differ for urban and rural areas. Annex Table A2.2, columns (6) and (7), and Figures A1.1 and A1.2 present the results for these samples. There are only two statistically significant results, and both are for the rural sample: (i) *lower inactivity for FBP recipients;* and (ii) *lower hours worked.* Notably, the discontinuity in the probability of the FBP beneficiary at the threshold is much stronger in urban areas than in rural areas, which makes this analysis more appropriate for the urban sample.

36. ***Regression discontinuity design is most appropriate given the eligibility structure of the FBP, but the robustness of the findings is determined by using other evaluation methods.*** Other methodologies also make it possible to estimate the program effect on the whole sample of able-bodied working-age individuals—whereas regression discontinuity analysis necessitates restricting the focus to the neighborhood of the threshold score.

37. ***The first alternative methodology is called instrumental variable (IV) estimation with binary treatment.*** In this approach, the proxies for the eligibility criteria (such as the number of family members belonging to each social group, income, housing conditions, car ownership, etc.) are used as instruments to predict the probability of receiving the FBP benefit. The predicted probability is then used as an explanatory variable in the second-stage regression—identifying labor market status. A set of control variables (such as sex, age, indicators for sector of employment for part-time work and informal employment outcomes, and geographic variables) are included in the second stage in order to control for the remaining differences between FBP beneficiaries and non-beneficiaries.

38. ***The results of this analysis reinforced the earlier findings that the FBP does not appear to cause any labor disincentives*** (see Annex Table A1.3 for a detailed presentation of

¹⁴ We also confirm the appropriateness of the assumption that able-bodied working-age individuals in the neighborhood of the threshold score are indeed similar in terms of age, sex, education, and settlement type (urban versus rural) [Table A2.2, columns (1)-(5)]. Our findings are also robust to changes in the interval (bandwidth) used to calculate the effect around the threshold [Annex Table A2.2, columns (8)-(9)].

the results). Indeed, if anything, FBP beneficiaries appear to be less likely to be inactive than similar non-beneficiaries.

39. *A matching technique further confirmed the earlier findings that the FBP does not appear to have a significant negative effect on either labor force participation (i.e., inactivity) or informality for working-age individuals that could be expected to work.* The matching methodology pairs the most similar FBP beneficiaries and non-beneficiaries, and assesses the differences in labor market status within these pairs. Annex Table A1.4 presents the results of matching with regression, where regression is used to reduce the remaining bias from imperfect matches. The results remain the same: i.e., the FBP does not create significant disincentives in terms of participation in either the labor force or the formal sector. However—similar to the IV analysis above—FBP beneficiaries do appear to be more likely than non-beneficiaries to work less than full time. The findings hold true for both urban and rural samples—the only observable effect of the FBP on labor disincentives is on the intensive margin.

V. Conclusions

40. ***This note dealt with the potential work disincentives effects of the Family Benefit Program (FBP), Armenia’s main targeted social assistance scheme.*** The GOA authorities were concerned that the FBP may have reduced the motivation of its beneficiaries to seek self-reliant income-generating opportunities. The GOA considers maintaining a robust social safety net system to be crucial. At the same time, it also believes that such a system should not discourage citizens’ own income-generating activities. Therefore, the Armenian authorities requested that the World Bank evaluate the extent of these potential work disincentives.

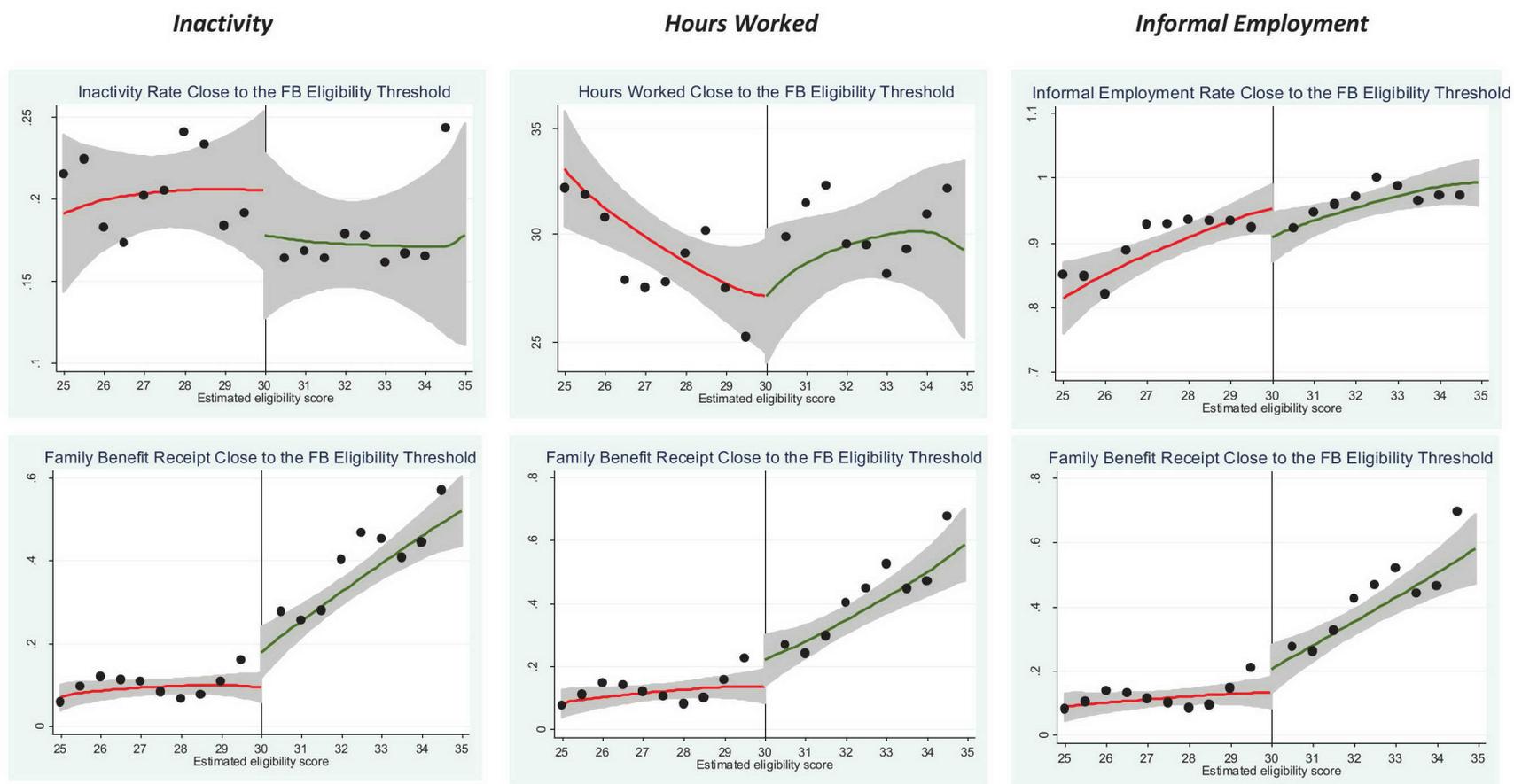
41. ***The study team undertook this note as a response to the GOA’s request for World Bank analytical support—the team examined the FBP from several different angles, for evidence of work disincentives.*** First, the team reviewed the international evidence—from both developed and developing countries—on work disincentives impacts of similarly designed social assistance programs. Second, it conducted an analysis of the demographic and labor market profile of FBP beneficiaries in order to: (i) identify and quantify the size of the beneficiary population that could be reasonably expected to participate in the labor force; and (ii) compare their labor market characteristics to similarly-defined non-beneficiaries. Third, it assessed the generosity of the FBP transfer relative to the prevailing income-generating opportunities, such as the minimum and average wages in the relevant labor markets. Fourth, it appraised the program with respect to any implicit or explicit design features that may discourage participation in self-reliant income-generating activities. Fifth, it used a number of rigorous empirical methods to estimate the magnitude and significance of the labor disincentives that may have been created by FBP.

42. ***Both the descriptive and the empirical results pointed to an absence of labor disincentives impacts from the Family Benefit Program.*** In general, the FBP does not appear to create any disincentives for participation in the labor force, for work effort, or for moving to the formal sector. The propensity for inactivity is similar for FBP and non-FBP able-bodied working-age individuals. The analysis of benefit generosity suggests: (i) that the amount of the FBP transfer does not compensate for the potential earnings in the formal labor market; and (ii) that the FBP transfer by itself does not provide an adequate means for families to support themselves. The estimates of program effects obtained by rigorous empirical analyses support the descriptive results and show no significant negative impacts of the FBP on inactivity and informality. The only negative effect of the FBP that the team was able to identify—with two out of three methods—was a reduction in hours worked in the rural sample.

43. ***Going forward, it is important for the GOA to continue monitoring the labor supply effects of its social assistance programs.*** This is particularly true if the government introduces changes to the design of the program (i.e., benefit generosity or eligibility criteria)

or significantly expands coverage. Some potential design features that can be used to prevent work disincentives in the future are: (i) more graduated benefit withdrawals (or earnings disregards) to ensure lower marginal tax rates upon exit from the program; (ii) requirements for job search and/or training for those FBP recipients who can be expected to work; and (iii) facilitated re-application process for individuals graduating from the program in order to prevent the “dependency trap” created by the relative security of social assistance (Adema 2006). Moreover, the other determinant of labor outcomes—labor demand—should be stimulated (through, for example, improvements in the investment climate) in order to absorb FBP graduates.

Figure 12: The FBP does not have Significant Impact on Labor Incentives



Source: ILCS (2009) and staff estimates.

Notes: The figures plot the labor market outcomes (upper panel), and the probability of receiving the Family Benefit (lower panel), on the estimated FBP eligibility score in the neighborhood of the FBP eligibility threshold (30) for able-bodied working-age individuals who are deemed as able to work (with working-age caretakers assigned for households with children or disabled). The results are robust to samples with no caretaker assigned or where the caretaker could be elderly. In terms of labor market outcomes: (Column 1) presents the probability of being inactive, i.e., out of the labor force; (Column 2) presents the hours worked (in main and secondary jobs combined) conditional on being employed; and (Column 3) presents the probability of working informally in the main job, conditional on being employed. The solid lines in the figures are fitted values from a local linear regression, estimated separately for individuals with eligibility scores above and below the FBP eligibility threshold score. The shadows around the lines are 95% confidence intervals. Each dot represents the average probability of the corresponding y-axis variable, calculated within half-integer intervals of the score.

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Annex 1: Statistical Tables of Results

Table A1.1: Social Group Scores

<i>Vulnerable Social Group</i>	<i>Vulnerability Score</i>
Disability I Group	48
Disability II Group	39
Disability III Group	28
Disabled child	45
Child (0-4)	35
Child (5-18)	33
Child with one living parent (single orphan)	43
Double orphan	50
Child with single/divorced parent	26
Full-time student (up to 23 years of age)	22
Pregnant woman (12 weeks or more)	35
Registered unemployed	22
Non-competitive unemployed	28
Pensioner	36
Single unemployed pensioner	37
Pensioner older than 75 years	39
<i>Absent family member or individual not belonging to any social group</i>	<i>18</i>

Source: MLSI.

Table A1.2: Regression Discontinuity Estimates of the Family Benefit Program Effect on Labor Disincentives

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		<i>Independent Variables</i>				<i>Program Effects</i>				
		<i>Bandwidth = 2</i>							<i>Bandwidth = 1</i>	<i>Bandwidth = 4</i>
<i>Dependent Variable</i>		<i>Male</i>	<i>Age</i>	<i>Education Level</i>	<i>Urban area</i>	<i>Program Effect</i>	<i>Program Effect (Urban only)</i>	<i>Program Effect (Rural only)</i>	<i>Program Effect</i>	<i>Program Effect</i>
Pr(Inactive)	Estimate	0.035	-2.560	-0.078	-0.081	0.008	1.145	-39.772*	-3.012	-0.340
	p-value	0.584	0.061	0.422	0.217	0.998	0.811	0.019	0.865	0.739
Hours worked	Estimate	0.036	-2.373	-0.138	-0.156	-17.028	-4.533	-364.607*	-41.405	-11.660
	p-value	0.683	0.217	0.202	0.087	0.970	0.989	0.017	0.950	0.935
Pr(Informal)	Estimate	0.062	-1.951	-0.138	-0.123	-0.172	-0.474	0.746	0.446	-0.540
	p-value	0.421	0.276	0.188	0.182	1.000	0.966	0.556	0.960	0.960

Source: Staff estimates based on ILCS (2009).

Notes: Columns (1) through (4) check for similarity of individuals above and below the threshold score on gender, age, education level, and settlement type (urban versus rural). Column (5) presents the local Wald estimate for the impact of the FBP program on the corresponding dependent variable, with the bootstrapped p-value presented below each estimate. The local Wald estimate is calculated using a fuzzy regression discontinuity design, with the estimated jump in the dependent variable at the threshold score as the numerator and the estimated jump in the probability of treatment at the threshold score as the denominator. Columns (6) and (7) present the local Wald estimates (i.e. program effects) for the urban and rural samples, respectively. Columns (8) and (9) check the robustness of the program effect estimate to half and twice the specified bandwidth. The triangle kernel function was used in all the above specifications. The sample is constrained to able-bodied working-age individuals who are deemed as able to work (with working-age caretakers assigned for households with children or disabled persons). The results are robust to samples with no caretaker assigned or where the caretaker could be elderly. Significance: *** 0.001, ** 0.01, * 0.05.

Table A1.3: Estimates of the Family Benefit Program Effect on Labor Disincentives: Instrumental Variable Treatment-Effects Model

<i>Dependent Variable</i>		<i>(1)</i>	<i>(2)</i>	<i>(3)</i>
		<i>Total</i>	<i>Urban Sample</i>	<i>Rural Sample</i>
Inactive	Estimate	-0.227***	-0.189***	-0.197***
	St. Error	(0.029)	(0.044)	(0.034)
Ln(hours worked)	Estimate	0.032	0.074	-0.034
	St. Error	(0.054)	(0.061)	(0.103)
Informal	Estimate	-0.055	-0.079	-0.052
	St. Error	(0.031)	(0.044)	(0.030)

Source: Staff estimates based on ILCS (2009).

Notes: Marginal effects reported. The table above presents the program effects of the Family Benefit, using an instrumental variable estimation with binary treatment. The shown estimates are second-stage coefficients (with standard errors below) on the instrumented receipt of the Family Benefit (i.e. program effect); all other coefficients are suppressed for presentation purposes. The first stage of this estimation method predicts the probability of receiving the Family Benefit using the following instruments: (i) the number of family members belonging to each social group; (ii) the number of work-incapable members; (iii) indicators of bad housing conditions; (iv) logarithm of per capita formal household income (formal salaries and wages, pensions, unemployment benefits, and the value of land and livestock); (v) indicator of zero income; (vi) car ownership; (vii) engagement in entrepreneurial activities; (viii) acquisition of real estate; and (ix) residence in a vulnerable or very vulnerable settlement. The second-stage regression includes the instrumented Family Benefit receipt along with the following covariates: (i) age; (ii) gender; (iii) indicators of education level; (iv) indicators of bad housing conditions; (v) car ownership; (vi) engagement in entrepreneurial activities; (vii) acquisition of real estate; (viii) logarithm of per capita formal income; (ix) indicator of zero income; (x) indicator for urban area; and (xi) indicators for marz and vulnerable settlements. The second-stage for hours worked and informal employment also includes indicators for the sector of employment (with agriculture as the omitted sector). All observations are weighted by their sampling weights. The sample is constrained to able-bodied working-age individuals who are deemed as able to work (with working-age caretakers assigned for households with children or disabled persons). The results are robust to samples with no caretaker assigned or where the caretaker could be elderly. Significance: *** 0.001, ** 0.01, * 0.05.

Table A1.4: Estimates of the Family Benefit Program Effect on Labor Disincentives: Matching with Regression

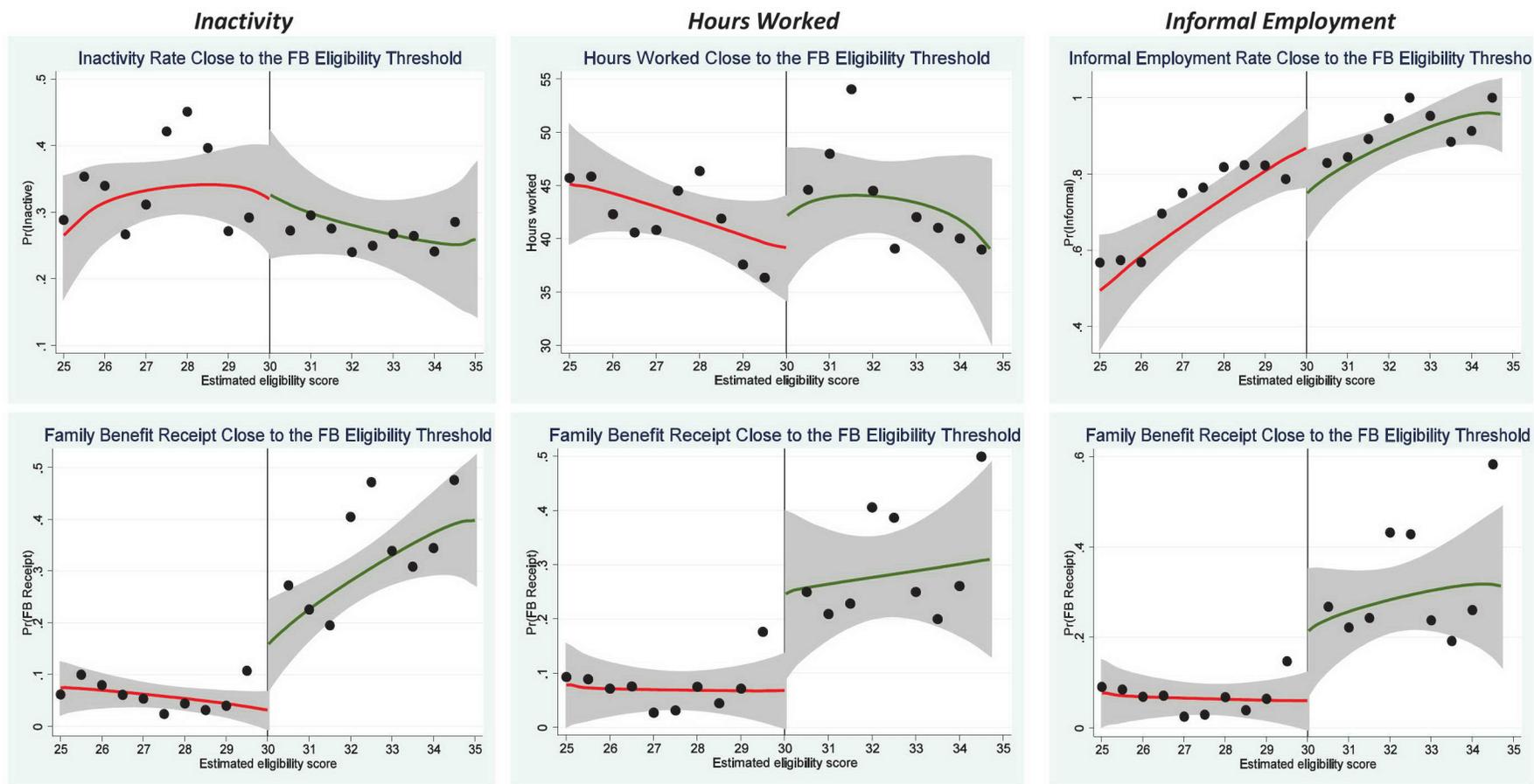
<i>Dependent Variable</i>		<i>(1)</i>	<i>(2)</i>	<i>(3)</i>
		<i>Total</i>	<i>Urban Sample</i>	<i>Rural Sample</i>
Inactive	Estimate	-0.106***	-0.099***	-0.070***
	St. Error	(0.012)	(0.02)	(0.006)
Ln(hours worked)	Estimate	-0.027	-0.057	-0.074*
	St. Error	(0.025)	(0.036)	(0.030)
Informal	Estimate	-0.140***	-0.196***	0.01
	St. Error	(0.032)	(0.051)	(0.009)

Source: Staff estimates based on ILCS (2009).

Notes: Each estimate is a sample average treatment effect and is derived from a separate matching procedure. The treatment is the receipt of the Family Benefit in 2009. Nearest-neighbor matching (single match), with bias adjustment (regression) for all covariates. Heteroskedasticity-consistent errors reported below coefficients - calculated using $h=1$ in the second matching process within treatment group. Inverse variance weighting matrix used. The sample is constrained to able-bodied working-age individuals who are deemed as able to work (with working-age caretakers assigned for households with children or disabled persons). The results are robust to samples with no caretaker assigned or where the caretaker could be elderly. Significance: *** 0.001, ** 0.01, * 0.05. All observations are weighted by their sampling weights.

Activable individuals were matched on: (i) age; (ii) gender; (iii) education level; (iv) average social group score within the household; (v) the number of work-incapable members; (vi) indicators of bad housing conditions; (vii) per capita formal household income (formal salaries and wages, pensions, unemployment benefits, and the value of land and livestock); (viii) car ownership; (ix) engagement in entrepreneurial activities; (x) acquisition of real estate; (xi) residence in a vulnerable or very vulnerable settlement; (xii) indicator for urban area; and (xiii) indicators for marz. For hours worked and informal employment outcomes, observations were also matched on the sector of employment.

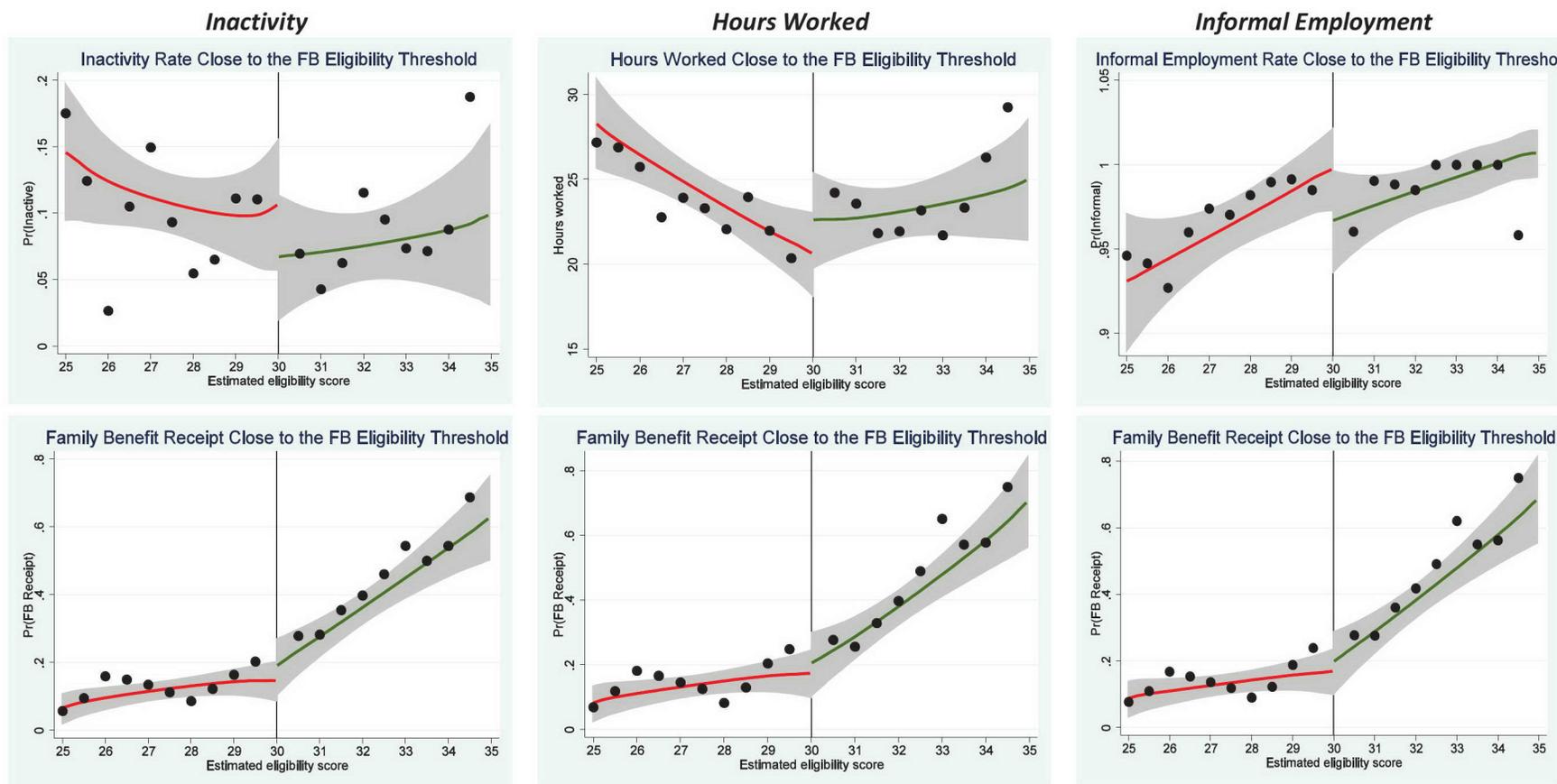
Figure A1.1: Discontinuities at the Family Benefit Program Eligibility Threshold Score, Urban Sample



Source: ILCS (2009) and staff estimates.

Notes: The figures plot the labor market outcomes (upper panel), and the probability of receiving the Family Benefit (lower panel), on the estimated FBP eligibility score in the neighborhood of the FBP eligibility threshold (30) for able-bodied working-age individuals who are deemed as able to work (with working-age caretakers assigned for households with children or disabled persons). The results are robust to samples with no caretaker assigned or where the caretaker could be elderly. In terms of labor market outcomes: (Column 1) presents the probability of being inactive, i.e., out of the labor force; (Column 2) presents the hours worked (in main and secondary jobs combined) conditional on being employed; and (Column 3) presents the probability of working informally in the main job, conditional on being employed. The solid lines in the figures are fitted values from a local linear regression, estimated separately for individuals with eligibility scores above and below the FBP eligibility threshold score. The shadows around the lines are 95% confidence intervals. Each dot represents the average probability of the corresponding y-axis variable, calculated within half-integer intervals of the score.

Figure A1.2: Discontinuities at the Family Benefit Program Eligibility Threshold Score, Rural Sample



Source: ILCS (2009) and staff estimates.

Notes: The figures plot the labor market outcomes (upper panel), and the probability of receiving the Family Benefit (lower panel), on the estimated FBP eligibility score in the neighborhood of the FBP eligibility threshold (30) for able-bodied working-age individuals who are deemed as able to work (with working-age caretakers assigned for households with children or disabled persons). The results are robust to samples with no caretaker assigned or where the caretaker could be elderly. In terms of labor market outcomes: (Column 1) presents the probability of being inactive, i.e., out of the labor force; (Column 2) presents the hours worked (in main and secondary jobs combined) conditional on being employed; and (Column 3) presents the probability of working informally in the main job, conditional on being employed. The solid lines in the figures are fitted values from a local linear regression, estimated separately for individuals with eligibility scores above and below the FBP eligibility threshold score. The shadows around the lines are 95% confidence intervals. Each dot represents the average probability of the corresponding y-axis variable, calculated within half-integer intervals of the score.