

Work Incentives and Welfare Programs. Evidence on Real and Reporting Effects in Uruguay

Marcelo Bergolo, IECON-UDELAR and CEDLAS-UNLP

Guillermo Cruces, CEDLAS-UNLP, CONICET and IZA

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Abstract

The incentive effects of social assistance programs on labor supply have been at the center of the debate on economic policy in developed country. In developing countries, beneficiaries of most such programs lose the entire cash benefit if their reported income exceeds certain eligibility thresholds. The impact of social assistance programs on informal employment is thus an additional policy concern for reasons of efficiency and coverage of social insurance. Economic theory suggests a decline in registered employment as consequence of real changes in behavior (i.e., reduction in labor supply) but also due to movements into informality as a response to the implicit taxation on reported earnings from the programs' income-testing. This study draws upon a local randomized experiment based on a strong discontinuity in the eligibility rule for a social assistance program introduced in Uruguay in 2008. This discontinuity implies a credible and transparent identification strategy to capture how financial incentives affect the behavioral response of eligible adults in the labor market. We rely on the program's administrative data covering the universe of adult individuals who applied to the program (about 400.000 individuals) and their registered labor market participation from the social insurance administration records for the period 2004-2012. We find that social assistance reduces registered employment by 7.5 percentage points on average for the period. We complement this information on registered employment with data from a follow-up survey of applicants designed to capture the potential effects of the program on informal employment. We find that about half of the total effect on registered employment is due to a real response (i.e., an increase in non-employment), but that the other half can be attributed to a program-induced increase in movements into non-registered employment. The program thus induces and reporting effects on participants' labor supply. The panel nature of the administrative data also allows us to analyze the dynamics behind this changes. The decline in formal employment operates mainly through a reduction in entries into registered employment rather than through a fall in the persistence of thus type of employment. This effect seems to increase in the medium-run term. We also find evidence that the impact of the program on employment is stronger for those exposed to it for a longer period of time.

JEL Classification: H31, I38, J22, O17.

Keywords: welfare policy, labor supply, registered employment, informal employment.

1 Extended Abstract

1.1 Introduction

Social assistance programs are widely recognized as key aspects of safety nets. They are intended to support those who face barriers to work and those who are trapped in disadvantaged situations. However, the work disincentives that these programs can introduce have long been a relevant policy and academic issue. The evidence on the perverse incentive effects of traditional welfare programs – such as the Aid to Families with Dependent Children (AFDC) in the United States – motivated the reform of welfare systems in developed countries, for instance placing limits on the duration of benefits and instituting work requirements for recipients deemed able to work (Blank, 2002; Brewer et al., 2009; Scholz and Levine, 2001.). Despite these improvements in design, there are still concerns and research about the potential unintended effects of welfare programs on labor supply. In developing economies with large informal sectors, welfare programs may create additional incentive effects along other margins of labor supply. Specifically, since several of these programs rely on income tests based on registered (or formal) labor earnings, the programs may not only introduce disincentives to work but also disincentives to registered employment. This is due to the fact that beneficiaries lose either all or part of their monetary benefits if their reported income (that is, earnings from employment registered with the tax and social insurance administrations and for which payroll taxes and contributions are paid) exceeds certain eligibility threshold. This creates a strong disincentive for registered employment around the cut-off point, with very high implicit taxes above this level and low (or even zero) tax levels for income below the threshold. This discontinuous drop in benefits (“cash-notch”) could push individuals on the margin of participation either to drop out of the labor force entirely or to move into unregistered employment. As consequence, the income-testing’s implicit taxation of reported earnings should lead to a reduction in registered employment, which in turn may correspond to *real* changes in behavior (i.e., reductions in labor supply) and/or to movements

into informality (from registered to unregistered employment).

The widespread implementation of social assistance programs in developing countries over the last two decades¹ in contexts of high labor informality and poor enforcement of regulations has spurred a debate on welfare programs' disincentives to registered employment, in particular in Latin America (Levy, 2008; Levy and Schady, 2013).² This is an important issue in developing countries for at least three reasons. First, lower levels of registered employment and lower reporting of income subject to payroll taxes results in reduced access to social insurance for workers and their families. Second, higher level of informality constrains the taxation capacity of countries because taxation is limited to a narrow set of formal employees, and because governments have incentives to maintain tax rates low to promote labor formality and not discouraging the activities in the formal sector. Third, a larger informal sector could lead to a variety of market distortions that limit growth and economic development (La Porta and Shleifer, 2008). Though there is a large body of literature that estimates the effects social assistance on labor behavior in developed countries (see the surveys in Moffitt, 2002; and Ben-Shalom et al., 2011), the corresponding evidence for developing countries is still limited and not entirely conclusive (surveyed in Bosch and Manacorda, 2012). In fact, to our best knowledge this is the first study that considers the effect of social assistance on both channels of response (real work effort and informality decisions of agents) to registered employment based on administrative data and matched survey data. This paper helps to close this gap by presenting evidence on workers' responses to social assistance in Uruguay in terms of registered employment, labor force participation and informality choices.

¹See Rawlings and Rubio (2005), Bouillon and Tejerina (2006) and Fiszbein, and Schady (2009), among others, for a review of social assistance programs in Latin America and the Caribbean, and for an evaluation of their impact on family consumer habits, education, child labor and diverse health indicators.

²Gasparini and Tornalli (2009) estimate that approximately 56 percent of wage earners in Latin America are informal, meaning that they do not pay payroll taxes in exchange for social insurance services such as health and pensions.

1.2 Institutional Background and Identification Strategy

We analyze the labor market behavior of recipients of the Asignaciones Familiares-Plan de Equidad (hereafter, AFAM) social assistance program in Uruguay. The AFAM, introduced in 2008, is a cash-transfer program with an income means test that targets poor households with children and is conditioned on several requirements, including both educational and health controls.³ Our analysis is based on a specific feature of the eligibility rule into the program, which is based on a predicted poverty score computed for all applicant households by means of a detailed questionnaire. After passing an income test (based mostly on household members' earnings from registered employment), a household becomes eligible for the program only if its poverty score surpasses a determined threshold, creating a sharp discontinuity in the likelihood of participation at the cut-off point. Because the poverty score is based on a non-linear combination of a large set of household characteristics collected before participation in the program, and the eligibility threshold was not disclosed by the authorities, applicants were unable to manipulate the assignment rule to gain entry to the program.

We implement a regression discontinuity (RD) design based on the discontinuity in the AFAM assignment rule that compares results of the adult labor market outcomes in applicant households closely above (i.e., the treatment group) and below (i.e., the comparison group) the program eligibility threshold (Han et al., 2001; Lee and Lemieux, 2010). Figure 1 illustrates the sharp discontinuity in the eligibility rule.

1.3 Data

Our empirical analysis is based on a combination of information sources that results in a unique dataset in the context of a developing country. Specifically, we matched three different databases at individual level:

1. Administrative data from the program, comprising the universe of individuals in appli-

³In the literature on welfare systems in developing countries, this type of programs are known as conditional cash-transfer programs (CCTs) (see Fiszbein, and Schady, 2009).

cant' households (about 400.000 observations) for the period 2008-2012,⁴

2. Registered employment histories for the universe of applicants from the Uruguay's Social Security Administration (the Banco de Previsión Social) for the period 2004-2012 (about 3 million of observations);
3. A follow-up survey conducted for a sample of applicant households (comprised of households who were deemed eligible but also from those who were deemed ineligible) conducted in 2012-2013 (about 4.000 observations). This survey was designed and implemented specifically to evaluate the labor market effects of the program and considering the identification strategy of our study. For instance, its sampling frame was restricted to those very close to the cut-off point.

The resulting dataset has several advantages that represent important innovation for the analysis of social insurance programs and labor market outcomes in developing countries. On the one hand, administrative data allows for very precise estimates virtually free from measurement error. However, this data only covers registered work. Complementing administrative data with a follow up survey allows us to uncover both the real and reporting effects of the program. On the other hand, another key advantage of our data is that its panel structure allows us to explore the dynamics of behavioral responses in employment.

1.4 Empirical Results

The main findings from our RD analysis may be summarized in as follows:

- First, the financial incentives induced from the AFAM program considerably affects the labor behavior of recipients adults who reduce their registered employment. For the 2008-2012 period, the program induced a reduction in registered employment for those eligible individuals at the neighborhood of the cut-off point of 7.5 percentage points on

⁴Uruguay's total population according to the 2011 Census was 3,286,314 individuals and 1,389,740 households.

average. Relative to the comparison group in registered employment, this effect implies a decline of 15 percent in formal employment. This main effect is illustrated in Figure 2.

- Second, the evidence on the effects of the program over the period of analysis suggests that the adverse effect on registered employment are constant over time, and even seem to slightly increase in the medium-run term. Figure 3 plots the difference in registered employment between the treatment and the comparison group as a function of the time households have spent on the program. Four years after of being enrolled, the AFAM program reduces the participation in registered employment by 9 percentage point, while the impact after two years of enrollment was 4 percentage points.
- Third, the dynamic analysis of participation in registered employment based on the administrative data indicates that the decline in this type of employment operates through reduced entries rather than through reduced persistence of formal employment, as illustrated in Figure 4.
- Fourth, the evidence from the matched follow up survey, which covered formal and informal employment, indicates suggest that about half of the total effect on registered employment is due to increases in non-employment (*real* work effort) but that the other half can be attributed to a program-induced increase in non-registered employment. This result is presented in Table 1, which presents the estimates for one point in time (at the time of the survey) which thus differ from the average results for the whole post policy period 2008-2012 presented in Figure 2.

Furthermore, the estimated effects are robust to a variety of specifications and robustness tests. The main results are not sensitive to the inclusion of control variables, to different functional forms specifications on the “forcing variable” (see panel a in Figure 5), nor to different bandwidths for the RD estimation (see panel b in Figure 5). Panel c in Figure 5 presents a graphical representation of the McCrary test, showing the continuity of the forcing

variable at the eligibility threshold, which confirms the validity of the RD identification strategy. Additionally, we do not find evidence of any discontinuity in the pre-treatment individual characteristics or labor market outcomes, and there is no evidence that agents have manipulated enrollment rules, at least in a discontinuous way.⁵

1.5 Discussion and Preliminary Conclusions

This study makes several contributions to the existing literature. First, it presents a comprehensive analysis of how social assistance programs affect labor market behavior in developing countries. It does this by studying the impact of the program in both registered and unregistered employment, and by analyzing the dynamic effects of the program’s incentives. In contrast to other studies on the region that have found negative but moderate effects on registered employment (Gasparini et al., 2009; Garganta and Gasparini, 2012), our evidence for AFAM suggests strong disincentives to formal employment among program participants. A possible explanation of this difference is that, unlike other regional cases, the AFAM administration strictly controls the income requirement for household eligibility. Such a conclusion is consistent with evidence presented in a 2011 study (Amarante et al., 2011) which used a similar RD strategy to analyze the effects of an emergency cash transfer program in Uruguay on registered employment for the 2005-2007 period (the Plan de Atención Nacional a la Emergencia Social or PANES).

Second, the results presented here are not only significant for the study of emerging economies like Uruguay, but also for transitioning economies relatively large informal sectors and even for developed countries (to a lesser extent). In the 1990s, the size of the unregistered sector in relation to the GDP in transitioning economies was 30-40%; in developed Europe, it was 15-30% (Schneider and Enste, 2000). These figures seem to have increased since the 2000s (Schneider and Enste, 2005). Moreover, recent evidence for the United States (Potter Gunter, 2013) indicates that the (registered or reported) labor income requirements of more advanced

⁵Under these conditions, RD-based estimations provide an “as good as randomly assigned” identification strategy at the neighborhood of the eligibility threshold (Lee, 2008; Lee and Lemieux, 2010).

welfare programs such as the EITC create incentives to report more income. Beneficiaries of the program seem to respond to this incentive in terms of declared self employment income.

Third, the results of this study offer important considerations for an ongoing policy debate over whether to encourage the expansion of CCT programs to other regions. The low cost of the programs, the effectiveness of the health and education conditions, and the absence of evidence that the programs create disincentives for work have motivated several developed countries to incorporate similar programs into their welfare structures (for example, *Opportunity NYC* in the United States). Our results indicate that the design of the programs should consider reactions along the registered/unregistered employment margin, and find ways to mitigate unintended adverse results. For instance, these programs could instead encourage registered employment by relaxing the income test and allowing beneficiaries to continue in the program while having substantial registered earnings, at least for a transitory period. In fact, drawing from the design of programs such as the USA's EITC and the UK's WFTC, these programs could even pay a higher level of benefit to beneficiaries moving to registered employment.

Finally, this study adds to a growing empirical literature on social assistance based on discontinuities in the policy assignment rule in both developed (Lemieux and Milligan, 2008; Bargain and Doorley, 2011) and developing countries (Amarante et al., 2011, Manacorda et al., 2011b, Meng, 2013). This identification strategy comes seems to yield more precisely estimated effects compared to the quasi-experimental methods that analyze policy change over time and which must control for simultaneous changes in the economic environment. (Hahn et al., 2001; Lee and Lemieux, 2010).

2 Figures and Tables

Figure 1: Assignment to AFAM: AFAM participation rate vs Poverty Score

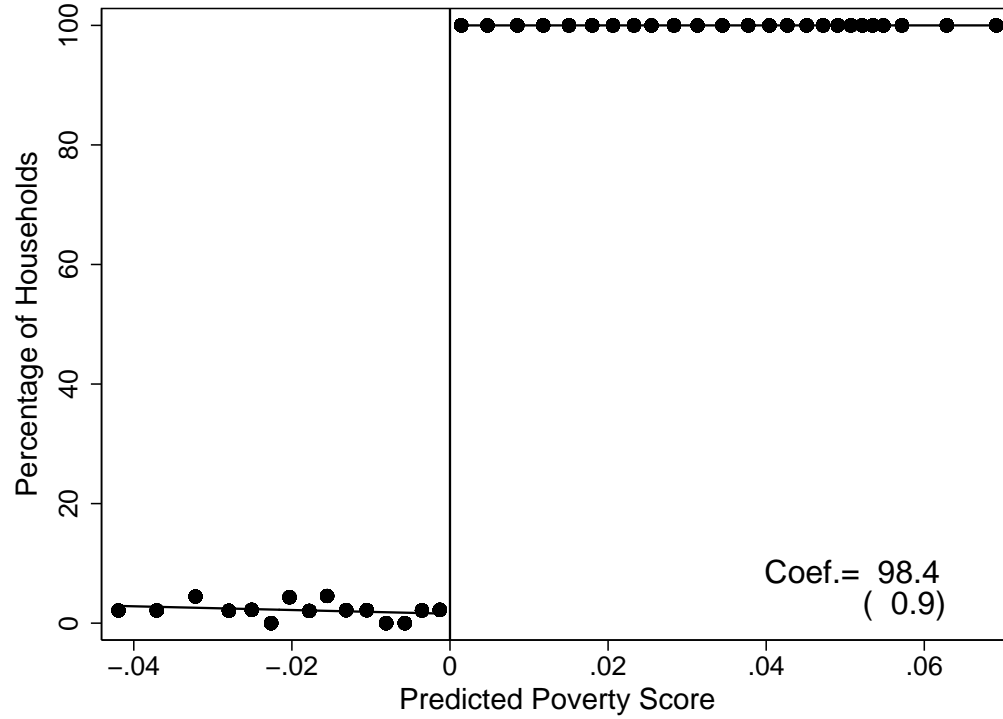
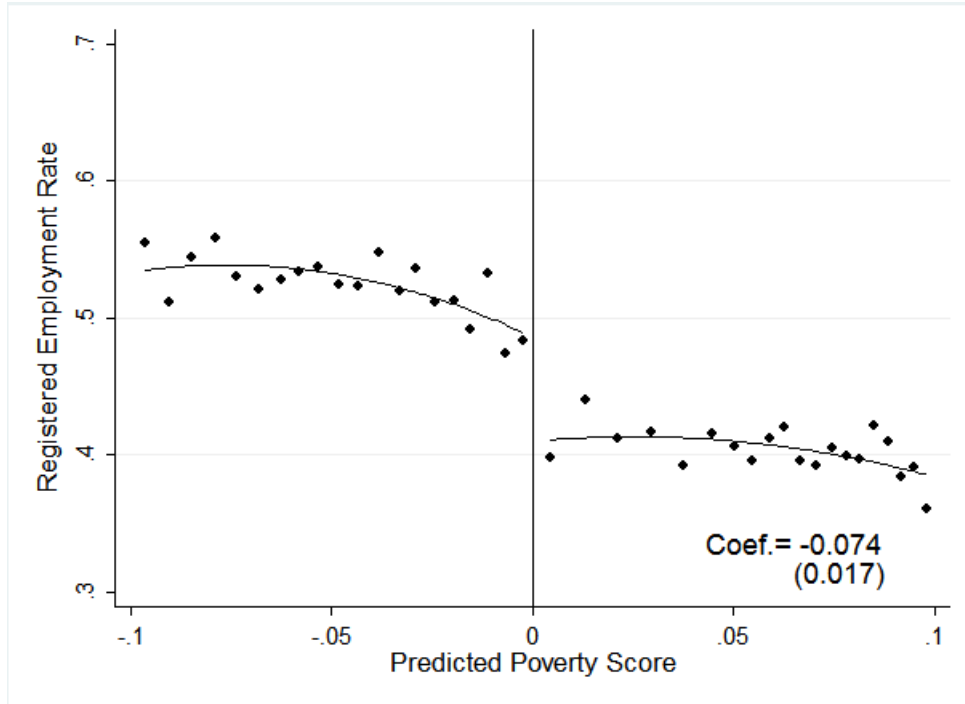
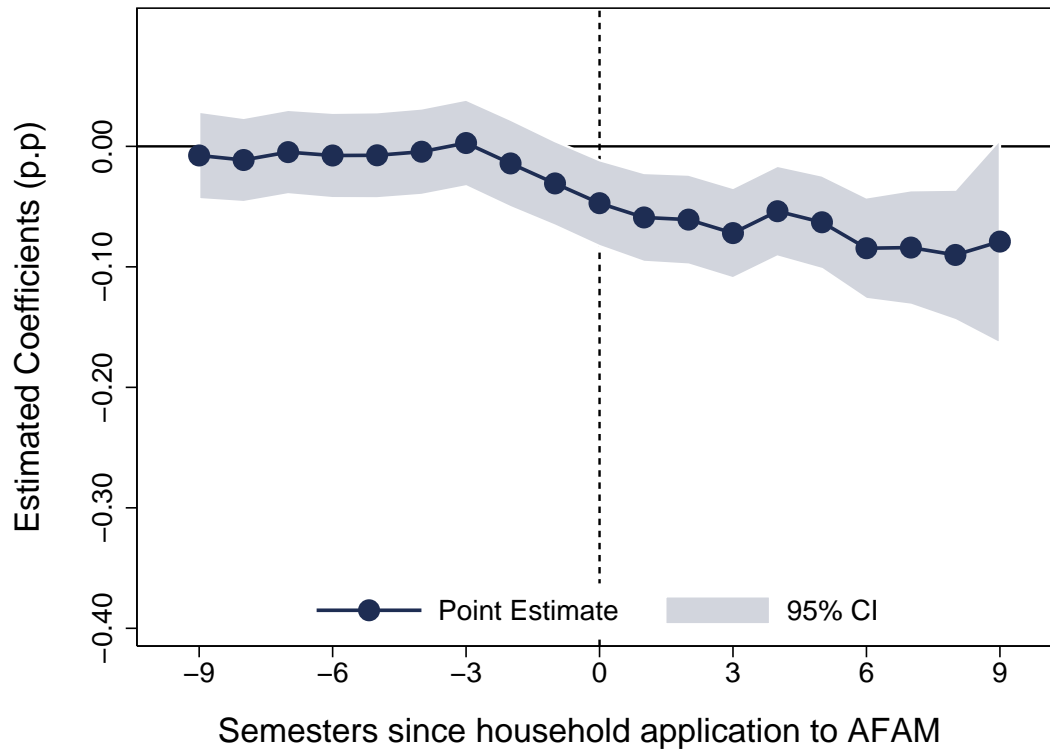


Figure 2: Effect of AFAM on Registered Employment (Average 2008-2012)



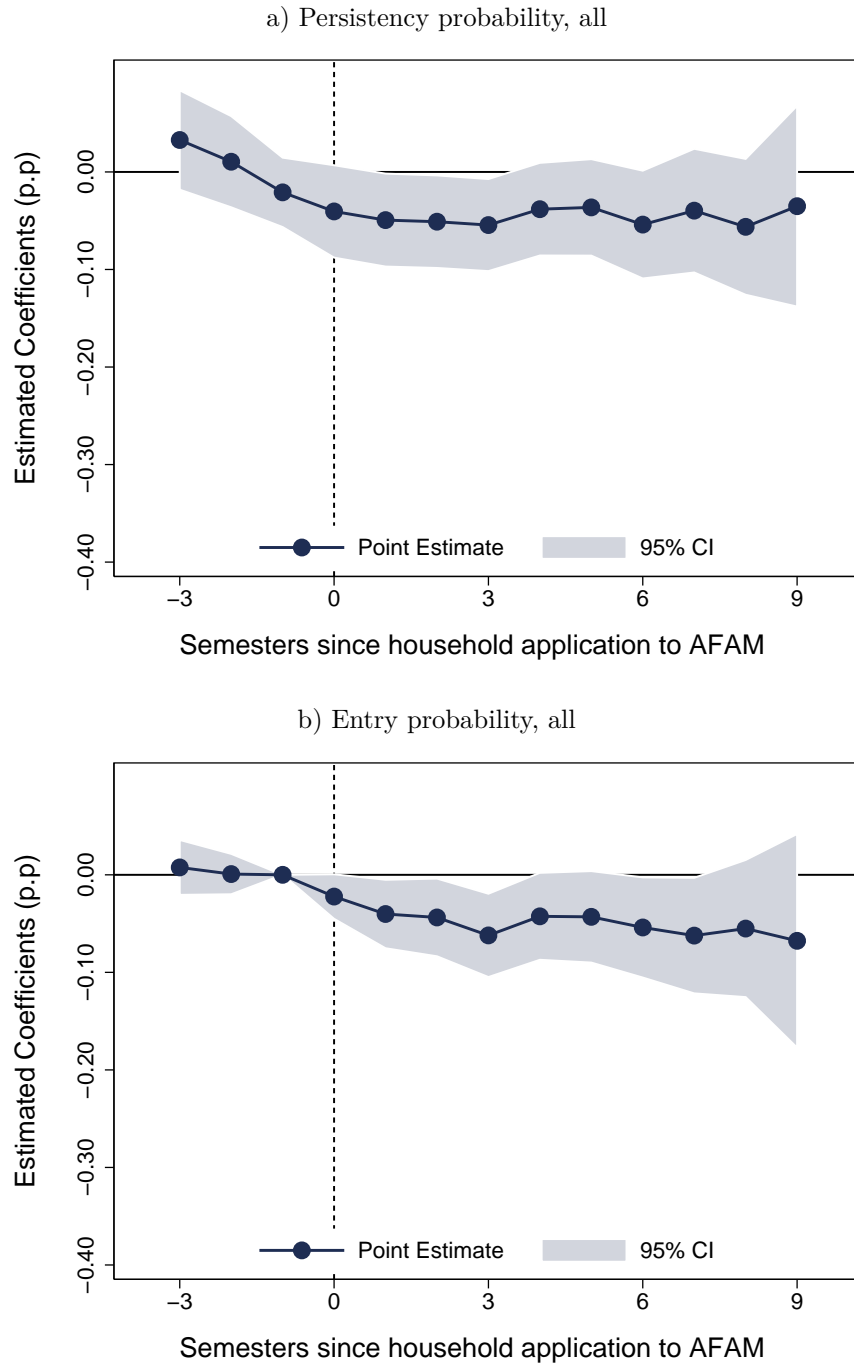
Notes: Observations: 1,462,174 (Individuals: 31,293 / max. months: 60)

Figure 3: RD estimates for registered employment over time. Estimates by semester since household applied to AFAM



Notes: Max. observations: 3,147,463 (Individuals: 31,293 / max. months: 114)

Figure 4: The AFAM effect on registered employment transitions. Conditional in the semester prior to AFAM was launched (2008)

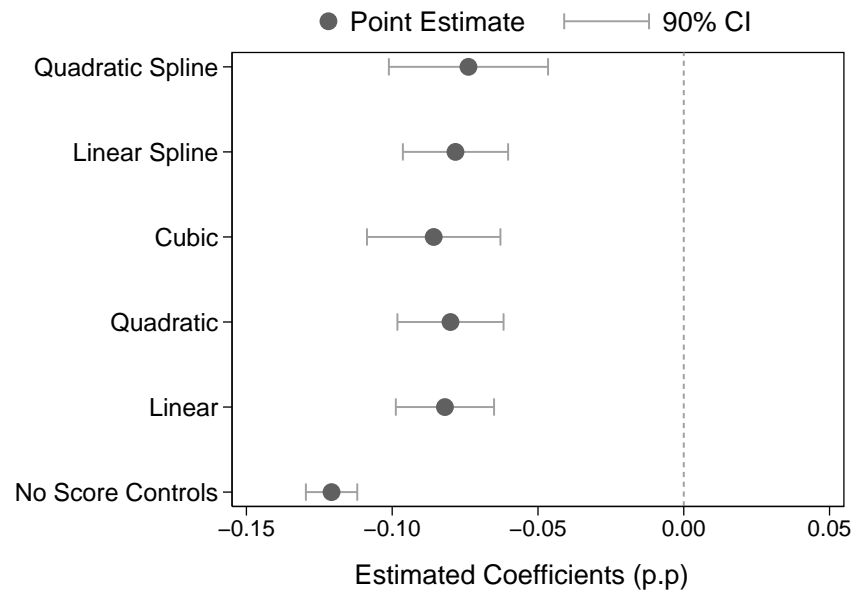


Notes:

Max. observations: 2,056,741 (Individuals: 31,293 / max. months: 78)

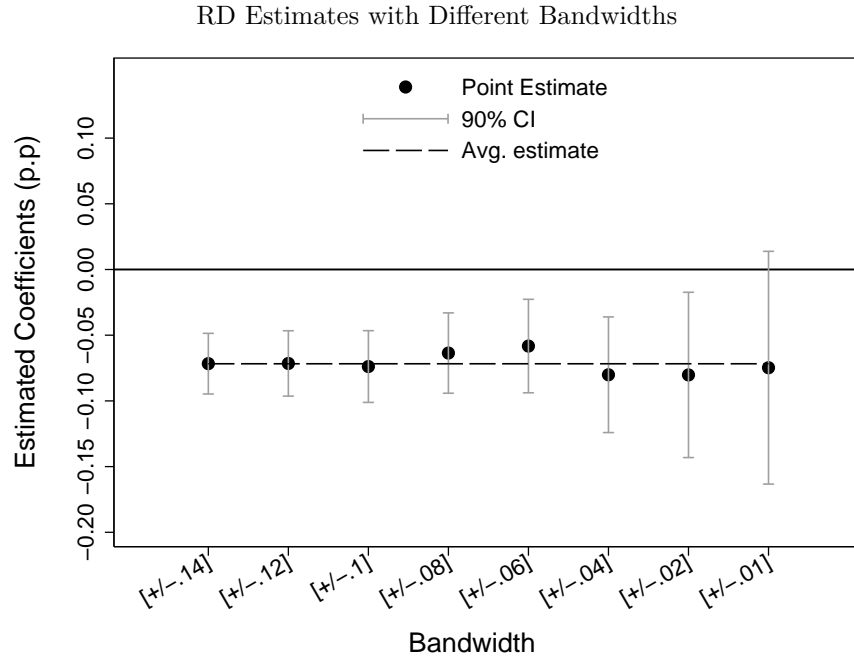
Figure 5: Robustness Tests: Robustness of the Effect of AFAM on Registered Employment (Average 2008-2012) to Different Polynomial Specifications

RD Estimates with Different Polynomial Specifications



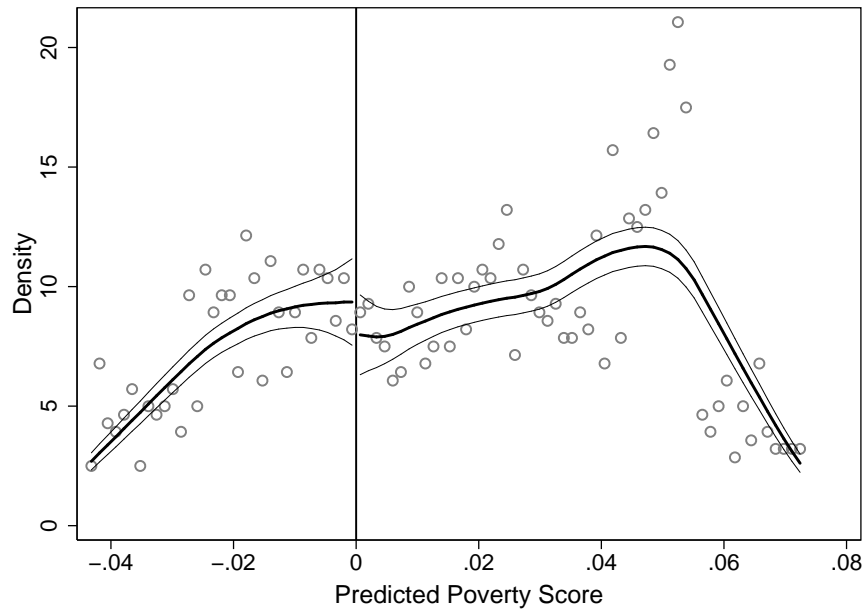
Notes: Panels a) and b) present robustness test of the main benchmark estimate presented in Figure 2. Panel c) presents the McCrary test of the poverty score in Figure 1. Observations for panel a): 1,462,174 (Individuals: 31,293 / max. months: 60). Panel b): 2,285,400 (Individuals: 48,486 / max. months: 60). Panel c): 31,293 (Max. months: 60).

Figure 6: Robustness Tests: Robustness of the Effect of AFAM on Registered Employment (Average 2008-2012) to Different Bandwidth



Notes: Panels a) and b) present robustness test of the main benchmark estimate presented in Figure 2. Panel c) presents the McCrary test of the poverty score in Figure 1. Observations for panel a): 1,462,174 (Individuals: 31,293 / max. months: 60). Panel b): 2,285,400 (Individuals: 48,486 / max. months: 60). Panel c): 31,293 (Max. months: 60).

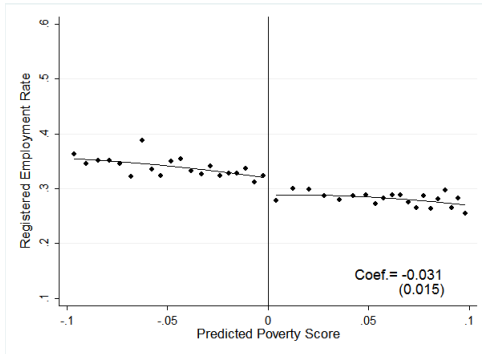
Figure 7: Robustness Tests: McCrary Test for the Distribution of The Poverty Score
McCrary Test for the Distribution of The Poverty Score



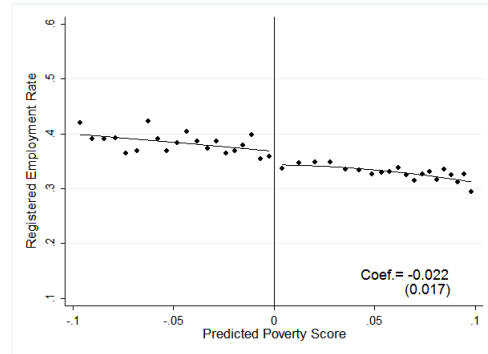
Notes: Panels a) and b) present robustness test of the main benchmark estimate presented in Figure 2. Panel c) presents the McCrary test of the poverty score in Figure 1. Observations for panel a): 1,462,174 (Individuals: 31,293 / max. months: 60). Panel b): 2,285,400 (Individuals: 48,486 / max. months: 60). Panel c): 31,293 (Max. months: 60).

Figure 8: RD estimates using pre-policy registered employment data

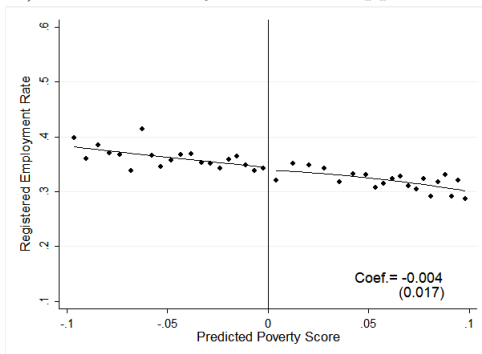
a) Before AFAM was launched in 2008: 2004-2007



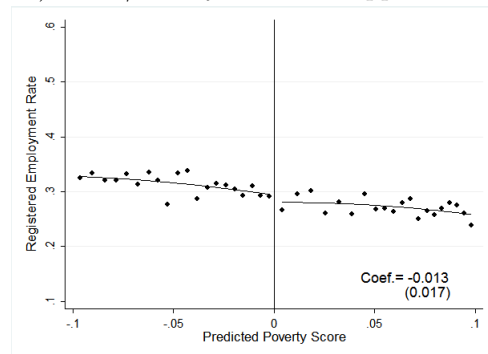
b) One year before application



c) Two to three years before application



d) Three/more years before application



Notes:

Figure a): Observations: 1,502,064

Figure b): Observations: 375,516

Figure c): Observations: 751,032

Figure d): Observations: 759,629

Table 1: RD estimates for registered employment, non-employment and unregistered employment. Follow-up survey sample only (2012-2013) - preliminary (unweighted data)

	Universe: Follow-up Survey		
	(1)	(2)	(3)
	Registered	Non-employed	Unregistered
Eligible	-0.190*** (0.053)	0.095** (0.044)	0.095* (0.050)
Observations	3,061	3,061	3,061

Notes: Unweighted regressions. * significant at the 10% level, ** at the 5% level, *** at the 1% level. Robust standard errors.

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