



# Can social programs break the vicious cycle between poverty and obesity? Evidence from urban Mexico

Pierre Levasseur\*

GREThA, Université de Bordeaux, France

Departamento de Economía Aplicada, Universidad de Granada, Spain

Irstea, UMR G-EAU, Montpellier, France



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## ABSTRACT

This article analyzes how social interventions offer a solution to counteract the spread of overweight among the poor. Focusing on the Mexican conditional cash transfers program, we assess the average effect of a long run enrollment on adult body mass index and waist-to-height ratio. An original triple difference approach, which distinguishes over time participants from nonparticipants and stayers from leavers, is implemented. We find that the expansion of this program (to urban areas) has a protective effect on adult bodyweight for staying participants, but not an absolute effect. Moreover, the global impact of the program to reduce obesity is halved due to a low rate of participation in Mexican cities. Furthermore, we find health-risky externalities related to the cash component of the program. Indeed, the amount of cash payments is positively correlated with abdominal fat concentration, especially among enrolled women and for short-run enrollments. To sum up, our results bring new insights to the complementary role of both program components (cash and conditionalities).

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## 1. Introduction

Important lifestyle transformations occur through urbanization, industrialization and globalization: food consumption becomes more caloric and physical activity decreases. As a consequence, these transformations destabilize the balance between calorie intakes and expenditures, and then lead to a spread of obesity and related diseases. However, obesity is not homogeneously distributed in a given society. Some social categories of the population appear to be more exposed to obesity than others. Interestingly, the social gradient of obesity tends to change over the development process. While fat is positively correlated with high social positions in traditional societies, obesity particularly affects poor populations in modern and rich economies (McLaren, 2007; Sobal & Stunkard, 1989). In other words, the obesity burden moves from the rich to the poor over the economic development process. Two principal channels may explain this surprising shift. First, economic growth is often associated with a growing access of poor populations to new consumption goods (ultra-caloric and processed food, durable assets related to inactivity, etc.) which

unbalance energy intakes and expenditures and result in a generalized weight gain (Monteiro, Conde, & Popkin, 2001; Monteiro, Moura, Conde, & Popkin, 2004). Second, through the globalization process of culture, thinness ideals are progressively adopted, even in the developing world (Brewis, SturtzSreetharan, & Wutich, 2018). Fat stigma increases in society institutions (e.g. schools and labor market) and then reduces socioeconomic climbing capacities of overweight and obese persons (Cawley, 2004; Runge, 2007). Conjointly, both channels lead to a vicious circle between poverty and weight gain: obesity reduces the chance of schooling and/or professional success, obese people plunge or remain into poverty, the poor have obesity-related lifestyles, and so on.

Given the strong association between poverty and obesity, social programs appear as a relevant solution to this public health problem. However, in developing countries, often over-indebted, the introduction of social protection system is limited by budgetary and fiscal restrictions. Hence, many emerging countries like Mexico have opted for a compromise alternative: the conditional cash transfers (CCT) programs. Since these programs only target the poorest, their cost is relatively low. The principle is simple. In exchange for monetary (or non-monetary) supplements, the participant agrees to meet a number of conditions (called conditionalities), which generally aim to increase public service demand (i.e. school and health center). Cash transfers are said to be

\* Address: GREThA, Université de Bordeaux, 16 Avenue Léon Duguit, 33608 Pessac cedex, France.

E-mail address: [pierre.levasseur@u-bordeaux.fr](mailto:pierre.levasseur@u-bordeaux.fr)

“conditional” because participants who do not meet the attached conditionalities are directly excluded from the program and do not receive payments anymore. Cash incentives have two main functions: (i) to encourage eligible households to take part in the program and (ii) to offset several constraints related to public service attendance, such as direct (registration, uniform, equipment, consultation, transportation, medicine, injections, etc.) and indirect costs (opportunity cost, loss of time, etc.). Note that the poor are particularly sensitive to these constraints. Evidently, other factors limit the public service demand from poor populations, such as the lack of interest in health and education. This lack of interest is theoretically attributable to a low level of nutritional and health knowledge, as well as temporal inconsistencies (i.e. preference for a present satisfaction rather than for an uncertain investment in human capital, Banerjee & Duflo, 2011; Levine, 2015).

Two principal reasons make the case of Mexico especially relevant to explore how CCT may constitute a concrete action to simultaneously reduce poverty and obesity in countries with low funding capacities. First, the Mexican CCT program, called *Progres*a, then *Oportunidades*, and finally *Prospera*, is one of the most ambitious and successful around the world (Fiszbein et al., 2009). Second, overweight and obesity now concern two-third and one-third of Mexican adults, respectively. Besides, the obesity burden is significantly increasing in low social categories in Mexico through both pathways discussed above, especially in urban settings (Levasseur, 2015, 2018). Fig. 1 is explicit about the social gradient of obesity and its evolution. While the shift of obesity burden has already moved to the poorest (the lowest educated) in urban areas, the shift of the obesity-social gradient remains at a transitory stage in rural settings (intermediate levels of education are associated with the highest obesity prevalence).

Initially, the purpose of the program was to eradicate hunger and extreme poverty by intervening in education, nutritional deficiencies and infectious diseases. Established in 1997 as part of a randomized controlled trial in a small group of marginalized rural areas, this program has shown positive impacts on human capital indicators. In view of its conclusive results (see Hoddinott & Bassett, 2008), the government extended the project to overall marginalized rural areas between 1998 and 2000, and then to small urban areas in 2001 and to Mexican metropolises in 2002. In 2007, poor households from all marginalized communities of the country (rural and urban) were eligible for the program. However, the existing literature reveals that the program expansion to urban areas, since 2001, has several limitations. Indeed, the participation rate of eligible households is anecdotic (around 50%) and the rate of dropouts is surprisingly high in cities (Angelucci, Attanasio, & Maro, 2012).

Based on the case study of the Mexican CCT program, we aim to identify how a social intervention allows the vicious circle of poverty and obesity to be broken. More specifically, we seek to explore how both program components (cash versus conditionalities) can constitute a solution (or a limit) to break this circle. Using a quantitative design based on longitudinal data from the *Mexican Family Life Survey* (2005–12), the present study aims to assess the average treatment effect on the treated (ATET) for urban adult populations regarding two complementary bodyweight outcomes: the *body mass index* (BMI) as a general adiposity indicator and the *waist-to-height ratio* (WHtR) as an abdominal adiposity indicator. To our knowledge, no study has yet measured the impact of the Mexican CCT program on anthropometric indicators in the case of urban adults. The use of a triple difference (DDD) approach appears to be particularly relevant in the context of the study. By distinguishing participants from nonparticipants, and then participants who withdraw (leavers) from participants who remain beneficiaries (stayers) over time, this approach adds a temporal dimension to the analysis. In other words, the triple difference design differentiates the effects of a short-run enrollment (carried by leavers) and the effects of a sustained enrollment (carried by stayers). This original approach has the advantage to correct the existing time-invariant heterogeneity that simultaneously explains the treatment status (nonparticipant, stayer or leaver) and the bodyweight indicators. Moreover, to better control for baseline heterogeneity between nonparticipants, stayers and leavers, pre-matching procedures are implemented and used to weight DDD estimates. Finally, we explore the independent effects of both program components (cash versus conditionalities) by analyzing the relationship between the level of cash payments and bodyweight among enrolled adults, distinguishing short-run from long-run enrollments.

The rest of the article is organized as follows: Section 2 succinctly describes the Mexican program of CCT; Section 3 presents the existing literature that analyzes the impacts of the program on nutritional health and highlights some limitations to explore; Section 4 describes the data; Section 5 establishes the empirical strategy; Section 6 comments the results; and Section 7 concludes.

## 2. Description of the Mexican conditional cash transfers (CCT) program

### 2.1. Benefits

The Mexican program offers two types of cash transfers: (i) a basic aid to increase household food consumption; (ii) optional scholarship to encourage school attendance. Each type of transfer is linked to specific conditionalities.

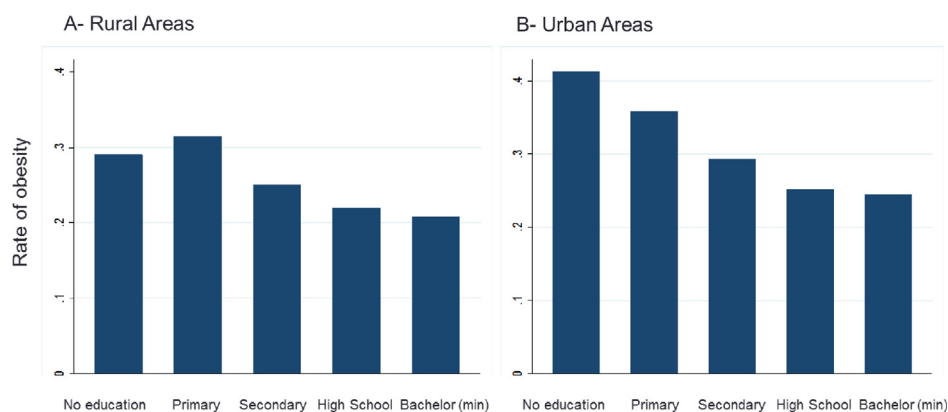


Fig. 1. Obesity by level of education among Mexican adults in 2009/12. Note: MxFLS (2009/12).

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