Levy Economics Institute of Bard College

Public Policy Brief

IT'S ABOUT "TIME": WHY TIME DEFICITS MATTER FOR POVERTY

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Preface

We cannot adequately assess how much or how little progress we have made in addressing the condition of the most vulnerable in our societies, or provide accurate guidance to policymakers intent on improving each individual's and household's ability to reach a basic standard of living, if we do not have a reliable means of measuring who is being left behind. With the support of the United Nations Development Programme and the International Labour Organization, Senior Scholars Rania Antonopoulos and Ajit Zacharias and Research Scholar Thomas Masterson have constructed an alternative measure of poverty that, when applied to the cases of Argentina, Chile, and Mexico, reveals significant blind spots in the official numbers.

Standard estimates commonly provide us with an incomplete understanding of poverty because they operate under a flawed assumption: that all individuals and households have enough time to engage in the unpaid cooking, cleaning, and caregiving that are an essential part of a minimum standard of living. As the authors demonstrate, continuing to take for granted the time and income needed for meeting household production thresholds not only obscures how various populations are faring, but may also hinder the development of a more effective and comprehensive policy response that would help lift a wider swathe of the population out of poverty.

The official estimates ignore the plight of various individuals and groups who commonly experience time shortages that prevent them from being able to perform necessary household work, or income shortages that prevent them from purchasing market substitutes for household production deficits. Without sufficient time to devote to household production, and without the necessary surplus income to buy market substitutes, individuals and households are falling through the cracks in ways that do not show up in the official poverty numbers.

To address these blind spots, the authors developed a two-dimensional measure of time and income poverty, the Levy Institute Measure of Time and Income Poverty (LIMTIP), and applied the measure to determine the depth, breadth, and distribution of time and income poverty in Argentina, Chile, and Mexico. What their results show is that, despite prevailing levels of social transfers, public goods, and social care provisioning, policy has a long way to go to address the condition of the significant number of people who experience poverty-inducing time deficits. The differences between the official and LIMTIP poverty estimates in all three countries studied reveal that there is a substantial part of the population whose poverty is effectively "hidden" from policymakers. Moreover, LIMTIP allows us to measure the extent to which some individuals and households officially recognized as poor are even worse off, once time deficits and LIMTIP-adjusted income deficits are taken into account, than the official numbers suggest. The authors also look at the ways in which time poverty and LIMTIP-adjusted income poverty affect various segments of the population to differing degrees.

Finally, Antonopoulos, Masterson, and Zacharias conducted a full-time employment simulation to measure the impacts on time and income poverty of a hypothetical scenario in which every employable adult who is out of the workforce or working part time moves to full-time paid employment. While they found that this hypothetical expansion of full-time employment would lift many individuals and households out of poverty, there are some for whom the expansion of employment opportunities would not represent an effective path out of poverty. The authors note that, to be effective, employment-creation strategies need to be complemented by policies designed to address the poverty-inducing effects of time deficits. They conclude by outlining an integrated policy agenda that would cut across class and gender lines and address deficits in jobs, earnings, and the provision of social care; that would address, in other words, a fuller spectrum of the challenges, above and below the radar, faced by those struggling with poverty.

As always, I welcome your comments.

Dimitri B. Papadimitriou, *President*
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Acknowledgments

Introduction

Proposals for measuring gross domestic product and economic well-being that recognize the critical contributions of unpaid household production activities have been around for some time. Since the 1993 System of National Accounts recommendations, in fact, a number of countries have produced a variety of national product satellite accounts that have documented the importance of household production.

Yet, when it comes to official poverty calculations, the links between household production and living standards have been largely ignored. This omission would not be troublesome if the time necessary to engage in such production were always amply available. But this need not be the case.

To the degree that some households and individuals face time constraints that prohibit them from performing basic housework tasks such as cooking, cleaning, and caring for children; and insofar as they do not have the wherewithal to obtain substitutes (e.g., paid child care), official poverty estimates do not capture the full extent of deprivation. Further, it is quite plausible that the joint distribution of time and income deficits differs systematically across population subgroups (e.g., families with children versus single-adult households). Should this prove to be the case, the reported data on the incidence and depth of poverty are inaccurate. It also follows that poverty trends can be biased, and hence highly misleading. If we accept the proposition that household production contributes to the standard of living, taking time deficits into account makes for better measurement of income poverty: tracking both can reveal vulnerabilities that have so far remained hidden—while all along they have been affecting, in distinct ways, different segments of the population.

We believe that the alternative measure we present in this brief alters how we ought to think about who suffers from deprivation, and how we should design policies that are aimed at improving living standards and lifting people out of poverty. Our measure reveals that a much wider segment of the population, extending well into the ranks of the "middle class"[1] in the countries we study, is falling below minimum thresholds of living standards; that many of those who are officially labeled as poor are even worse off than officially estimated; and that some common policy approaches to poverty alleviation are woefully inadequate.

Motivation and Context of our Approach

The cornerstone of our approach is the idea that economic deprivation depends not just on the availability of income for meeting various wants and needs, but also on the availability of sufficient time to engage in a variety of household production activities. The glaring flaw in official poverty thresholds is that they rest on the tacit assumption that all households have the ability to allocate a certain minimum amount of time to household production. For example, the poverty line may be based on a frugal food budget that assumes that all meals consumed are prepared at home. The often-forgotten corollary of such an assumption is that some members of the household are supposed to have enough time to spend on shopping, cooking all the meals consumed by the household, and cleaning up afterward. As another example, the poverty line may not include the expense of child care, thus implicitly assuming that families with children must find time (or unpaid help) to care for their children.

How might this oversight be corrected? We propose that "poverty-level time requirements for household production" ought to be identified, defined as the amount of time that needs to be spent by a household on household production activities to survive with an income around the official poverty line. Of course, unlike the official income-poverty lines, poverty-level time requirements are not directly available to us. However, we can and do (as discussed later) estimate them from available data on time allocation and income.

Next, we suggest that it must be recognized that just as some households cannot gain access to a minimum income, some households fall short of poverty-level time requirements. Distinct reasons can account for this time deficit: individuals in the household may be devoting too much time to employment, thus facing an employment time bind; or the size and composition of a household may mandate that an exorbitant number of unpaid work hours are needed, resulting in housework time binds; or a combination of both time binds may be at work.

As a result, two households with identical characteristics and equal incomes will have the same official poverty profile,[2] even though one of them may be facing a severe time crunch. If the time-deficient household is unable to compensate for unmet household production needs by purchasing market substitutes (e.g., buying ready-made meals), to presume that the two households enjoy identical standards of living and share the same poverty profile is misleading.

Objectives and Key Components of This Study

The alternative measure we propose, the Levy Institute Measure of Time and Income Poverty (LIMTIP), is a two-dimensional measure of income and time poverty. Time poverty, especially when coupled with income poverty, imposes hardships on the adults who are time-poor as well as their dependents, particularly children, the elderly, and the ill. Income poverty alone does not convey enough useful information about their deprivation. Our measure can shed light on this phenomenon. In this brief, we contrast the picture of poverty that emerges between the LIMTIP and official measures in Argentina (Buenos Aires), Chile (Gran Santiago), and Mexico, and articulate the policy lessons those differences disclose.

To better understand which combination of policies can best ameliorate economic deprivation, we must recognize the degree to which time allocation between market and nonmarket activities affects the ability of households and individuals to procure the basic necessities and conveniences of life. Due to demographic differences—principally in household size and composition—households differ in terms of both their minimum income requirements and their minimum household production requirements for meeting basic needs. Furthermore, it should not be assumed that women and men partake equally in meeting these time requirements. To shed light on inequalities between and within households requires that we consider differentiation across both income and household production dimensions, and therefore it is imperative to understand how labor force participation and earnings interact with time dedicated to household production responsibilities. This is essential for understanding and addressing gender inequalities in particular, as it is already well established that women contribute their time disproportionately to unpaid household activities relative to men.

In addition to reevaluating existing poverty, we also develop a microsimulation framework to assess the impact of actual or potential poverty-reduction policy strategies. In this brief, we investigate the poverty reduction implications—using official and LIMTIP poverty thresholds—of a hypothetical scenario in which every employable adult who is currently not employed or employed part-time becomes employed full time (under the existing pattern of earnings and hours of employment). This scenario allows us to examine the likelihood that each household would escape poverty in the event that every adult in the household were employed full time. This is especially relevant because much of the policy debate on inclusive growth centers around

the growth-employment–poverty alleviation nexus. What the simulation reveals is that full-time employment, if not accompanied by other policy changes, proves to be insufficient as a poverty alleviation strategy. While some escape poverty, many others trade one form of deprivation (time-based) for another (income-based). Accordingly, we conclude with a discussion of the broader range of policies that are imperative for jointly addressing time and income poverty.

The Levy Institute Measure of Time and Income Poverty

Central to our alternative measure of poverty is the concept of a "time deficit."[3] We begin with an accounting identity: the physically fixed total number of hours available to any individual (i.e., 24 hours in a day or 168 hours in a week) equals the sum of time spent on income-generation activities, household production, personal care (sleeping, eating, bathing), and everything else (leisure, volunteer work, and so on). We next define the committed time of the individual as the sum of (1) *required* weekly hours of personal care, (2) *required* weekly hours of household production, and (3) the *actual* weekly hours the individual spends on income generation. An individual suffers from a time deficit if their committed time is greater than the number of hours in a week.

We assume that the threshold value for personal care is equal to the average weekly hours spent by adults on personal care activities. The threshold is set at the *individual* level and applies uniformly to every adult.[4]

In contrast, the thresholds for household production hours are set at the *household* level; that is, they refer to the total weekly hours of household production to be performed by the members of the household, taken together.[5] The logic behind setting the poverty-level time requirement at the household level is that we consider certain household-level characteristics (specifically, size and composition) as the crucial factors in shaping such requirements. We estimated thresholds for 12 types of households, differentiated by the number of adults and children in each.[6] For each type of household, the threshold is equal to the average weekly hours of household production for households that possess two specific characteristics: (1) their incomes are near the official poverty line, so as to gauge what we described earlier as poverty-level time requirements for household production; and (2) they have at least one nonemployed adult present, so as to ensure that the threshold hours are derived from

households that are not as likely to be constrained by exorbitant allocations of time to paid work activities.

It should be emphasized that our goal in specifying and estimating the time requirements for household production is rather limited. Our goal is to merely ascertain the time requirements that are implicit in the official poverty lines. There is no presumption that these time requirements reflect what may be thought of as "sufficient" or "desirable."[7] Setting sufficient and/or desirable thresholds for the various activities of household production is a complex normative task. Unfortunately, normative analyses of this question are sparse compared to analyses of income or consumption poverty.

Once the household-level time requirements are estimated, we need to determine the intrahousehold distribution; that is, the portion of the household-level requirements that falls upon each individual in the household. Common sense and research suggest that the individual's characteristics (e.g., labor force status and educational attainment) and relationship to other members of the household (e.g., husband or wife, parent or child) would greatly influence the time spent by them on household production activities. Accordingly, it is reasonable to suppose that, in general, the portions of the household-level time requirement that fall upon each individual in the household can differ.

Translating this reasonable supposition into empirical estimates is rather difficult, since the proportions in which the household-level time requirement would be split among the members of the household cannot be directly observed. But what can be observed directly from the data is the *actual total* hours of household production performed by each individual member of the household. With this information at hand, whatever the revealed division of total time (among household members) turns out to be, we assumed that the same identical proportions would also apply to the division of the household-level threshold time requirements (among household members).[8] In other words, we split the required weekly hours of household production among household members according to the revealed allocation of the actual total hours.[9]

After the threshold values for personal care and household production were determined for each individual, we could calculate their time deficit or surplus because the weekly hours of income-generation activities (i.e., employment) were available in the data. Since the total physically available hours in a week (168 hours) and required hours of personal care are uniform across individuals, the differences in time deficits derive from the differences in required weekly hours of household production and actual weekly hours of employment.

The next step in our measurement framework is to derive the time deficit of the household. This step is essential to determine whether the household has a time deficit and, if so, the magnitude of the deficit. To obtain the household time deficit, we add up the time deficits of individuals in the household, ignoring possible time surpluses of the individuals in the same household. This procedure of obtaining the household time deficit is a consequence of our methodological choice of the individual—rather than the household—as the unit of analysis in our measurement of time deficits. On the other hand, if we were to add up the time surpluses and time deficits of individuals in the household, it would be equivalent to choosing the household as the unit of analysis in the measurement of time deficits.

A question may arise as to whether our procedure reflects a particular assumption regarding the intrahousehold division of household production—namely, noncooperation between individuals. In fact, our earlier discussion about intrahousehold division in the context of determining the required hours of household production for individuals should put such doubts to rest. The patterns of observed intrahousehold division vary widely in households with two or more adults, ranging from one person performing the entire amount of household production to equal shares in total household production for all persons. We believe that our procedure yields a better *description* of time deficits faced by individuals under *observed* patterns of time allocation. Choosing the household as the unit of analysis in the measurement of time poverty sweeps aside many of the concerns that motivated this study (e.g., gender disparities in the division of household production tasks, and the impact of women's employment on poverty). Viewed from our framework, adding time surpluses and deficits together to define household time deficits implies a strong assumption regarding the intrahousehold division of labor: that the individual with a time surplus will devote their surplus to more household production, thereby reducing or eliminating the negative pull from the time deficits of other individuals in the same household. We do not rule out that individuals in some households may behave in this fashion to cope with time deficits, but we do not accept it as an axiom in our measurement of time poverty.[10]

Once we have the time deficits for each household, the next step is to calculate the income necessary for that household to fill the gap in household production time via market purchases.

We estimate the money equivalent of household production time gaps based on the average wage for domestic workers. This amount is added to the official income poverty line for that household so as to obtain a new income poverty line that is adjusted by the time deficit. We refer to this as the LIMTIP poverty line. Obviously, the official and modified (LIMTIP) thresholds will coincide if the household has no time deficit.

Our measure can identify the households and individuals that are in time deficit and/or in LIMTIP income poverty. A household is said to be time-poor if any person in the household suffers from a time deficit, and LIMTIP income-poor if the household income falls below its LIMTIP poverty line. Analogously, an individual is time-poor if they suffer from a time deficit; and LIMTIP income-poor if they live in a LIMTIP income-poor household. This allows us to produce a four-category classification of time and income poverty (LIMTIP) status for both individuals and households: (1) income-poor and time-poor; (2) income-poor and time-nonpoor; (3) income-nonpoor and time-poor; and, (4) income-nonpoor and time-nonpoor. With these thresholds and this classification we can analyze populations and subgroups based on the incidence and depth of both time and income poverty.

The Time and Income Poverty of Households

Summarizing the discussion above, LIMTIP monetizes household production time deficits and adds them to the household's official poverty threshold to create an adjusted, LIMTIP poverty line.[11] The issue at hand is to gauge whether a household's available income is adequate to meet the LIMTIP threshold, which reflects basic needs embodied in the official poverty line *as well as* purchases of market substitutes for these time deficits (if and when they arise). Those households that suffer from an inability to "buy" themselves out of household production time deficits (caring for children, for instance) are "hidden" as far as official poverty estimates are concerned.

The size of the hidden poor—namely, those households with incomes above the official threshold but below the LIMTIP poverty line—was found to be considerable in all three countries (Table 1). The LIMTIP income poverty rate for Argentina is 11.1 percent, compared to 6.2 percent for the official poverty line. For Chile, adjusting for time deficits increases the poverty rate to 17.8 percent from 10.9 percent for the official line. And in Mexico, the poverty rate increases to 50 percent from an already high 41 percent. This implies that the households in hidden poverty in Argentina, Chile, and Mexico comprise, respectively, 5, 7, and 9 percent of all households.

Taking time deficits into account dramatically alters not only the incidence but also the depth of income poverty. The average LIMTIP income deficit for poor households was 1.5 times higher than the official income deficit in Argentina and Chile, and 1.3 times higher in Mexico. Thus, official poverty measures grossly understate the unmet income needs of the poor population. From a practical standpoint, this suggests that taking time deficits into account while formulating poverty alleviation programs will significantly shift both coverage (including the hidden poor in the target population) and benefit levels (including the time-adjusted income deficits where appropriate).

In all three countries, only a minority are free of both income and time poverty, with the best scenario emerging in Argentina, at 45 percent; while the rate stands at 33 percent in Chile and only 20 percent in Mexico (Figure 1). The proportion of households (poor and nonpoor combined) with time deficits was 52, 61, and 65 percent, respectively, in Argentina, Chile, and Mexico.

Interestingly enough, we also found that the incidence of time deficits was higher among the income-poor than the

Table 1 Official, LIMTIP, and "Hidden" Poverty Rates (in percent) and Number of Poor (in thousands)

| | Official Income-poor | | LIMTIP Income-poor | | "Hidden" Poor | |
	Number	Percent	Number	Percent	Number	Percent
Argentina	60	6.2	107	11.1	47	4.9
Chile	165	10.9	271	17.8	106	6.9
Mexico	10,718	41.0	13,059	50.0	2,341	9.0

Argentina	8	3	44	45
Chile	12	6	49	33
Mexico	35	15	30	20

■ Income-poor and Time-poor
■ Income-poor and Time-nonpoor
■ Income-nonpoor and Time-poor
■ Income-nonpoor and Time-nonpoor
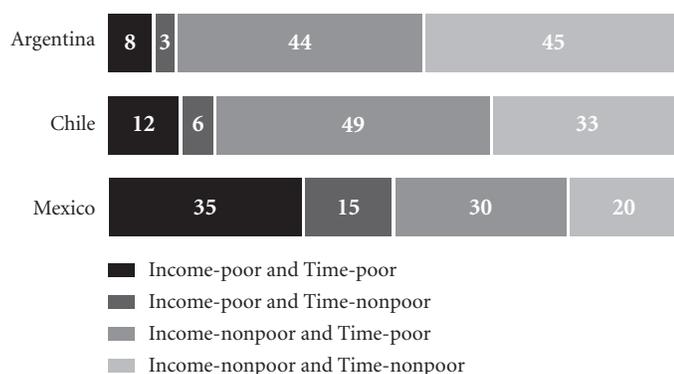
income-nonpoor households *in all three countries*. The gap was the widest in Argentina (70 versus 49 percent). It was somewhat smaller in Chile (69 versus 60 percent) and Mexico (69 versus 61 percent). While the stressful long hours of the professional classes are publically acknowledged, the plight of the poor is not as clearly understood. We will return to this point shortly.

Our findings indicate that the most frequently encountered cause of time poverty is long hours of employment (employment time bind). But we must note a strong gender dimension at this point: there are a significant number of individuals, the vast majority of them women, who face time poverty exclusively due to long hours of housework. In this case, they have time deficits even before employment hours are taken into consideration because they face an unequal burden of household production hours—a housework time bind.[12] In Argentina and Mexico, such individuals made up roughly 20 percent of all time-poor individuals, while in Chile they constituted a smaller fraction at 13 percent. The time deficits they face are indeed staggering: between 50 and 60 hours a week.

Clearly, the employed are more prone to time deficits than the nonemployed. Therefore, taking time deficits into account increases the share of employed households (those with the head, the spouse, or both employed) in the total number of LIMTIP income-poor households. Among employed households, hidden poverty was found to be greatest for dual-earner households. But the largest degree of hidden poverty among employed households occurs when children are present, especially children below the age of six. Overall, the incidence of hidden poverty in employed households closely followed that of the population at large in all three countries. Unsurprisingly, a much lower proportion of

employed households suffered neither time nor income poverty, compared to the nonemployed. But in all three countries, the employed income-poor have the highest rate of time poverty (82 percent in Argentina, 81 percent in Chile, and 76 percent in Mexico), and approximately 90 percent of the time-poor households are employed households.

Comparing single female–headed to married-couple households, we found higher rates among the former for both official and LIMTIP income poverty in Argentina and Chile, while in Mexico the income poverty rate was slightly higher for married couples. The differences were even greater for households with children, with 20.8 percent of married-couple households with children and 27 percent of single female–headed households with children in LIMTIP income poverty in Argentina; and 22.1 compared to 38.5 percent in Chile. In Mexico, both rates were much higher, but the gap between them was small: 59.2 versus 59.8 percent. This pattern is repeated in terms of the depth of income poverty, with single female–headed households having a larger income deficit as measured against the poverty line than married couples in Argentina and Chile, while in Mexico, the income deficit is nearly identical.

Finally, we return to a point mentioned earlier. We noted above that the incidence of time deficits was higher among the income-poor than the income-nonpoor households. Looking closer at households that experience time deficits, we found that the time deficits of time-poor and income-poor households were higher than those of the time-poor but income-nonpoor households, dispelling the view held in some quarters that time poverty takes a higher toll on relatively well-paid professionals. The scales were tipped the most in Argentina, where, for example, for married-couple households the average time deficit for the income-poor was 43 hours per week, compared to 26 hours for the income-nonpoor. This gap was smallest in Mexico, with 33 hours and 26 hours for the income-poor and income-nonpoor, respectively.

The Time and Income Poverty of Individuals

Just as for households, we found that the LIMTIP poverty rate for individuals was higher than the official poverty rate. The share of hidden poor individuals in the total population is noteworthy (Table 2): 7 percent (183,000) in Buenos Aires, 8 percent (432,000) in Gran Santiago, and 9 percent (9.5 million) in Mexico. While there are clearly more women than men who were LIMTIP income-poor, this is mostly a reflection of demographics,

Table 2 Poverty Rate of Men, Women, Children, and
All Individuals (in percent)

		Official	LIMTIP	Hidden
Argentina	Men	7	13	6
	Women	7	12	6
	Children	16	28	12
	All	9	16	7
Chile	Men	9	15	6
	Women	11	18	7
	Children	19	29	10
	All	13	20	8
Mexico	Men	40	49	9
	Women	43	51	8
	Children	57	67	10
	All	47	56	9

because there were only small differences in poverty rates by gender. However, the differences between adults and children were large because households with children are more likely to be poor. In Argentina, the LIMTIP poverty rate for children was more than twice that for adults, with 65,000 children in hidden poverty; adding this to the official poverty head count for children brings the total to 150,000 in LIMTIP income poverty. In Chile, the official and LIMTIP income poverty rates for children were 19 and 29 percent, respectively, corresponding to 9 and 12 percentage points above the rate for adults. In Mexico, the gap was even larger at 15 and 17 percentage points for official and LIMTIP income poverty, respectively, though the relative increase was smaller, given Mexico's high poverty rates. To put these percentages in perspective, using the LIMTIP definition for Chile, an additional 172,000 children are recognized as living in income-poor households, bringing the total to 487,000, while in Mexico the number was 3.7 million, bringing the total to about 26 million children living in poverty.

One of the striking findings is that, taken as a whole (income poor and income nonpoor together), most children live in time poverty; that is, they are members of time-poor households, surrounded by adults that face time deficits: 80 percent of children in Argentina, 70 percent in Chile, and 74 percent in Mexico. Children living in income poverty were exposed to an even greater incidence of time poverty: 84 percent in Argentina and 75 percent in Chile and Mexico. While in Argentina and Chile

roughly the same proportion of women and men (5 or 6 percent) suffered both time and income poverty, in Mexico the ratio was slightly higher for women: 19 compared to 16 percent. In all three countries, women suffered higher rates of time poverty than men: 33 versus 31 percent in Argentina, 32 versus 27 percent in Chile, and 36 versus 31 percent in Mexico. Not surprisingly, then, in all three countries men were more likely to be in the privileged category of being both income- and time-nonpoor: 62 versus 60 percent in Argentina, 63 versus 56 percent in Chile, and 36 versus 32 percent in Mexico.

Addressing differences in time-poverty rates between men and women by employment and income (poverty) status sheds additional light on the composition of time poverty. In income-poor households, among women, most of the time poverty is that of employed women; still, 20 percent of the time-poor women in Argentina and Chile and 33 percent in Mexico were nonemployed, and hence in the grips of the housework time bind. This is true of almost *none* of the nonemployed men. In income-poor households, men had lower time-poverty rates in Mexico (33 versus 38 percent for women) but slightly higher overall rates of time poverty than women in Argentina (41 versus 39 percent) and Chile (36 versus 34 percent). But all of the male time poverty in Chile and Mexico and most of it in Argentina is that of *employed* men: they are facing an employment time bind.

In income-nonpoor households, time-poverty rates were found to be consistently higher for women than for men (31 versus 29 percent in Argentina, 32 versus 26 percent in Chile, and 34 versus 29 percent in Mexico). In Argentina and Chile, this was due mostly to the sharper drop in time-poverty rates for employed men between income-poor and nonpoor households. In Mexico, the gap between male and female time-poverty rates is the same for income-poor as for income-nonpoor households, and since the share of men in employment is the same, the drop in male time poverty comes entirely from the lower time-poverty rate of employed men, while for women the drop comes from the lower rate of time poverty among nonemployed women.

The gap between official and LIMTIP income-poverty rates is greater for employed individuals than for the nonemployed, due to the larger time deficits of the former group. In Argentina and Chile, we found that employed men and women had similar rates of both official and LIMTIP income poverty. In Mexico, however, employed men had higher rates of official (and LIMTIP) income poverty than women: 40 (49) percent compared to 33 (45) percent. For the nonemployed, the situation varies across

the three countries. In Argentina, nonemployed men had higher rates of official (and LIMTIP) income poverty than women: 15 (21) percent compared to 11 (15) percent. In Chile, the nonemployed men were slightly more likely to be income-poor: 18 (23) percent, compared to 16 (22) percent for women. And in Mexico, nonemployed women were more likely to be among the income-poor: 50 (56) percent, compared to 43 (49) percent for nonemployed men. Two striking implications of accounting for time deficits in the measurement of poverty become apparent. First, employed persons constitute a greater proportion of the poor under the LIMTIP poverty line than the official poverty line. Second, women account for a larger share of the employed poor when time deficits are taken into account.

In all three countries, workers facing the double deprivation of time and income poverty were mostly concentrated in the lowest two quintiles of the earnings distribution, and since women are at a disadvantage in earnings, the majority were women. Yet, as measured by LIMTIP, poverty extends its reach beyond employed individuals in the bottom quintiles of the earnings distribution, at least much more so than in the official poverty measure: adjusting official poverty lines for time deficits means that more of the employed LIMTIP income-poor will be from higher up in the earnings distribution. In Argentina, 89 percent of officially income-poor individuals were from the bottom two quintiles of the earnings distribution, while only 74 percent of the LIMTIP income-poor were. By implication, 26 percent of the LIMTIP poor are from higher earnings brackets. A similar story is evident in Chile, where 90 percent of the officially poor but 71 percent of the LIMTIP income-poor were from the bottom 40 percent of the earnings distribution. Finally, in Mexico, where poverty is more widespread, the numbers were much closer: 62 versus 58 percent. Breaking down these numbers by sex, we found that women were overrepresented in the lower earnings quintiles in all three countries. Thus, even though their income poverty rates were lower, they comprised a majority of the income-poor among the bottom quintile—except in Mexico, where an almost equal share of employed men and women in the bottom quintile results in an almost equal share of the income-poor in the lowest quintile.

Next, we considered the incidence of time and income poverty by employment type. While we found relatively small differences in poverty rates between men and women in the different employment categories in Argentina, own-account women workers were more likely to suffer from a combination of income

and time poverty; however, they were outnumbered by men, since men make up a majority of own-account workers. Among casual-wage workers, the number of income-poor women was higher than that of men, though their poverty rate was smaller. Also, the largest single group among the LIMTIP income-poor population was made up of regular workers, while among the official income-poor the largest single group consisted of casual workers. By contrast, in Chile the rates of time poverty were higher for women than for men in all three employment types, and both the official and the LIMTIP poor were concentrated among the regular-wage workers (although casual workers did make up a larger share of the LIMTIP than of the official income poor). In Mexico, income poverty rates were lowest for regular-wage workers, by a wide margin (34 percent of regular-wage workers suffer from LIMTIP income poverty, compared to 56 and 61 percent, respectively, of own-account and casual workers). The gender differences in poverty rates were highest among casual-wage workers, while the incidence of the double bind of time and income poverty was lowest among regular-wage workers and roughly similar for unpaid family workers, own-account workers, and casual-wage workers.

A Full-employment Simulation

The aim of this exercise is to explore the ability of households to transition out of poverty should adults of working age who are currently underemployed or not employed become employed full time (25 or more hours per week). While gaining access to paid work increases the income of the newly employed individual and the household they belong to, some are liable to experience time deficits. Transitioning out of poverty will therefore depend not only on their prior income gap and the sufficiency of newly earned income to close it, but also on redressing time deficits, if and when they emerge. Given prevailing labor market conditions, should their wages prove too meager, their disadvantage and deprivation will certainly not be addressed through paid work alone. Some individuals may even become poor or fall deeper into poverty in this full-time employment scenario. For example, if a member of an income-nonpoor household should become employed and receive wages below the wage of a domestic worker, time deficits could potentially prove to be poverty inducing.

Approximately 80 percent of the adults with part-time hours of employment or in nonemployment status—in other words,

80 percent of those who were shifted to full-time employment in our simulation—were women. Given our previous findings, we know that when women are employed, they are prone to higher levels of time poverty, and therefore we can anticipate that while earnings will reduce poverty, time deficits will pull quite strongly in the opposite direction. Furthermore, we found that the majority of potentially employable women (approximately 60–65 percent) were mothers living with children under 18 years of age; among the employable income-poor, this rate was as high as 66–68 percent. As we have seen in all three countries, households with children are more vulnerable to income and time poverty than households without children. This raises doubts about whether additional earnings can be sufficient for a substantial number of households to escape income poverty if interventions to redress time deficits are not forthcoming.

Our findings suggest that, in fact, job creation can lead to a very substantial reduction in the official poverty rate: by 83 percent in Buenos Aires, 72 percent in Gran Santiago, and 48 percent in Mexico, in our hypothetical scenario. Nonetheless, job creation was not the answer to poverty reduction for all households. As measured by LIMTIP, the decline in income-poverty rates is less robust: 45, 38, and 22 percent for Buenos Aires, Gran Santiago, and Mexico, respectively (Table 3). In fact, when we compare the before-and-after simulation results, hidden poverty—the difference between the official and LIMTIP rates—stayed almost the same for Argentina and Chile but increased considerably in the case of Mexico.

Among the households that remain in income poverty—the hard-core poor—it is important to distinguish between three different groups. The first group of households did not experience any change in their poverty status because they contained only ineligible adults; that is, adults who were disabled, retired,

in school, or in the military. Poverty alleviation for these households cannot be effectively accomplished via job creation. The second group of households did not experience any change in their poverty status because all the eligible adults were already employed full time. The third group consists of households that, even though they have employable adults who were assigned full-time employment in the simulation, remain below the LIMTIP poverty line. Some households in this third group would be officially income-poor, while the others would belong to the hidden poor (i.e., households with incomes above the official threshold but below the LIMTIP poverty line).

The majority of households in our case studies were the hidden poor, thus suggesting that monitoring the incidence of poverty via official measures can be fraught with problems. Besides biased results, official poverty estimates obscure an obvious policy recommendation: to redress time poverty among the working poor, efforts to promote job creation must be accompanied by social provisioning that reduces household production needs. Increasing women's labor force participation rate is absolutely essential to promoting gender equality, inclusive growth, and poverty-reduction agendas, but unless an integrated approach is undertaken, we will only substitute one type of inequality with another, while at the same time misleading ourselves by presuming that the well-being of households is improving.

As expected, in all three countries full employment brought about the most dramatic and positive impact on those in income poverty but with time to spare; namely, the time-nonpoor. The share of such households in the total number of households fell from 3 to 0 percent in Buenos Aires, from 6 to 1 percent in Chile, and from 15 to 2 percent in Mexico. From a policy perspective, this reinforces the idea of custom-tailoring interventions. What works for one group may not work for others. As can be seen in

Table 3 Actual and Simulated Income Poverty Rates (in percent)

| | Argentina | | Chile | | Mexico | |
	Actual	Simulation	Actual	Simulation	Actual	Simulation
Official Income-poor	6	1	11	3	41	21
LIMTIP Income-poor	11	6	18	11	50	39
"Hidden" Poor	5	5	7	8	9	19

Table 4 Percentage of LIMTIP Income-poor Households in the Total Number of Households by Time-poverty Status, Actual and Simulated

| | Argentina | | Chile | | Mexico | |
	Actual	Simulation	Actual	Simulation	Actual	Simulation
Income-poor and Time-poor	8	6	12	10	35	37
Income-poor and Time-nonpoor	3	0	6	1	15	2

Table 4, access to a job will not be a solution for households in time poverty. For them (women, for the most part), their time poverty must be addressed if they are going to benefit from the new job opportunities created, for example, through a successful inclusive-growth agenda.

In our scenario, the overall time-poor segment of income-poor women actually grew in Chile and Mexico, indicating that a proportion of the newly employed women ended up being time-poor and income-poor; while in Argentina, this segment showed no change in its size. On the other hand, the time-poor segment of income-poor men stayed constant in Argentina and Mexico, while it showed a slight decline in Chile. A notable gender disparity in the proportion of people with neither time nor income deficits emerged with full employment because the time poverty among income-nonpoor people rose faster for women than for men. This inequity highlights the hard choices women in nonpoor households are called on to make between paid and unpaid work.

Among the employed, women had higher rates of time poverty than men on both sides of the poverty line in the actual situation. This disparity widened in a marked fashion with full-time employment. The disparity in time-poverty rates between income-poor and income-nonpoor women also widened considerably with full-time employment.

One of the most disturbing findings is that over 95 percent of income-poor children in all three countries would find themselves living with at least one time-poor adult in the full-time employment scenario. This finding highlights the importance of considering policies specifically aimed at children in poor, employed households as an integral part of job creation strategies. Without such policies in place, job creation programs may have undesirable effects on the well-being of the children of the working poor. And since in our simulation most children in income-nonpoor families would also live with at least one time-

poor adult, policies specifically aimed at easing the time crunch faced by poor working parents may attract the support of middle-class working parents as well (if the policies proposed are adequately universal).

We can now see that poverty-reduction strategies that do not take into account the time required to reproduce the household will fall short of reducing deprivation and, indeed, could exacerbate it in some extreme cases. The simulation confirms that the objective of increasing the labor force participation of women, especially from low-income quintiles, requires integrated policies. As long as low wages prevail and child-care or after-school programs are sparse, the goal cannot be met fully. It must also be recognized that if these challenges are not addressed, gender inequalities intersecting paid and unpaid work will remain entrenched. A multipronged approach, featuring a progressive movement toward a living-wage guarantee, a better transportation system for easier commutes, and social care provision, is necessary to reduce poverty—both visible and "hidden."

The Policy Lessons of LIMTIP

The LIMTIP findings we have presented are based on incomes, taking into account prevailing levels of redistributive social transfer payments (including conditional and unconditional cash transfers) and household production requirements (given existing levels of public goods and social care provisioning). What we have found is that, under these circumstances, the poverty-inducing effect of the time deficits with which individuals and households contend is, in fact, substantial. Neglecting to take this factor into account renders many households' inability to meet basic needs invisible. Some, especially the employed, fall outside the radar of policy—these are the hidden poor. For others, their depth of poverty is largely underestimated, and current levels of interventions, including cash transfers (or earned-income tax credits),

cannot truly lift them out of poverty. For those with incomes that hover around the LIMTIP poverty threshold, the risks and vulnerabilities they face are indiscernible by official poverty measures, and idiosyncratic or systemic shocks are bound to create hardships for them. Our framework usefully quantifies and makes these vulnerabilities visible.

Poverty-inducing time deficits in household production are distributed differently across households and individuals based on gender, household size, the presence of young children, and parental and worker status. Hence, this study reinforces the idea that when remedial policies are contemplated, one size does not fit all. Finally, we have shown that inclusive growth policy interventions that aim at job creation can be effective for a large percentage of the income-poor population but are likely to also leave behind a sizable number of the income-poor. Unless policies are in place to counteract time deficits in household production and dismally low wages, many individuals, and women in particular, will remain excluded from the promise that remunerative work holds.

Despite widely differing economic conditions and social and economic policy regimes across the three countries in our study, we are able to identify overarching themes in terms of poverty-reduction strategies that effectively and simultaneously address both time and income poverty. First, our findings suggest a need for deepening the policy dialogue on a critical issue. In fighting income poverty (time adjusted), there are two obvious policy routes. The first route uses unconditional cash transfers to close income gaps; but to be effective, transfer levels must be based on accurate calculations of the depth of poverty, such as those provided by LIMTIP. The second route requires a much more transformative approach that is based on institutional labor market interventions. The cornerstone here is the reduction of gender-based wage differentials, the progressive realization of living wages, and a regulatory framework for effectively reducing long hours of paid work. This labor market transformation must be accompanied by a comprehensive approach to address the time deficits that the employed face. We will now discuss the ways in which different aspects of this sort of transformation address the needs of different groups among the poor.

We begin by considering the nonworking poor. As we have seen, full employment can produce a dramatic reduction in the incidence of income poverty among the nonworking poor, even without altering the current structure of earnings; efforts to steer economic development toward inclusive growth via policies that encourage employment generation are clearly central to poverty

alleviation. This creates space for innovative and flexible "employment guarantee" policies. These policies are helpful when labor market conditions are slack, in that they effectively put in place a wage floor, regulated work hours, and a minimum benefits package while providing part-time employment. But policy cannot stop at getting people into jobs, because the employed also face both income and time poverty.

From a gender perspective, the fundamental policy concern here is that the "male breadwinner" model is being reconstituted and reinforced by the realities of the labor market faced by women and men. More often than not, among poor households it does not "pay" for women to be full-time workers, due to a combination of wage differentials and precarious work for women, men working very long hours for slightly better pay, and the lack of a vigorous program to create decent jobs for all. Thus, women were the majority of the group that was the worst off among the employed according to our measure: members of income-poor households, the individually time-poor, and those belonging to the bottom of the earnings distribution. In addition, a large portion of poor, nonemployed adults were women with children under 18 years of age and only a high school degree or less. Employment policies that do not take into account the time deficits faced by the employable adults in income-poor households are likely to be less effective in terms of poverty alleviation.

Therefore, both poverty reduction and improvement of gender equity require an integrated policy agenda. The first policy area involves moving women gradually toward full-time paid work, which should be incorporated as a main goal of labor market transformation. However, in order to make employment a truly winning proposition for nonemployed women, as well as to improve the conditions of working-poor women, two further areas require just as much policy attention. To alleviate the time deficits faced by working women with children under 18, and by working parents in general, early childhood development and afterschool programs offering hours of operation that are appropriate for the work schedules of parents, and especially of women, must be made available. The co-responsibility of the state in care provisioning is central to enabling women to allocate more time to employment. Once that is achieved, leveling the playing field for women both inside and outside the home requires ameliorating gender pay disparities. Without attention to these areas, increased labor force participation among women will merely increase their time deficits, and likely erase any income gains made through employment.

The fact that in our study half or more of the hard-core poor consisted of the hidden poor indicates that using the official poverty measure to monitor the impact of job creation on poverty alleviation can leave a substantial portion of the working poor off policymakers' radar. While the poverty situation of own-account and casual workers is considerably bleaker when time deficits are taken into account, a substantial segment of regular (registered) workers were also found to be among the hidden poor and therefore similarly vulnerable, thus bringing to light a rather neglected aspect of deprivation in Latin America. Thus, policies to address time and income deficits can benefit regular workers as well as casual and self-employed workers to a much more equal extent than that implied by the official poverty measure.

Public action to alleviate the burdens of time and income poverty can and should be based on alliances that cut across gender and class lines, since our estimates indicate that workers suffering from income and time deficits were divided nearly equally across the sexes and included workers from the middle quintile (and in Mexico, even higher quintiles) of the earnings distribution. In this respect, regulation of the length of the working day is important for all workers but more so for men, whose hours of employment are 20–30 hours longer than those of women, with some of them reaching 60–70 hours of employment weekly.

Our study has highlighted the *jobs deficit* (lack of job opportunities), *earnings deficit* (the inability of a substantial segment of employed households to attain an income above the poverty line), and the *deficit in the social provisioning of care and other essential services* (e.g., transportation) that interact to keep a considerable proportion of the population locked in the grip of poverty. A coherent set of interlinked interventions that address the triple deficit of jobs, earnings, and social provisioning must lie at the core of any inclusive and gender-equitable development strategy that is worth its name. Public policy and public action cannot afford to wait for positive outcomes to magically "trickle down," nor can social development interventions be expected to deliver on the promise of poverty reduction in light of the interlocking nature of the triple deficits identified above.

Notes

1. We are using the term "middle class" here to indicate employed persons who fall in the middle quintile of the earnings distribution.

2. The poverty profile of the household indicates whether the household is poor or not, and, if poor, the extent of their unmet income needs.

3. For a comparison of alternative approaches to the measurement of time and income poverty, see Zacharias (2011).

4. In our estimates, we apply the thresholds to adults between the ages of 18 and 74 years.

5. In calculating the total weekly hours of household production for the household, we include all individuals in the households for whom time-use information exists. Our definition of household production encompasses mainly activities such as cooking, cleaning, shopping, care of children and adults, and so on. Activities such as regular own-account production of goods for sale or own use are excluded.

6. In Mexico, we also differentiated between households in rural and urban areas. As a result, we had 24 types of households.

7. The potential divergence between our poverty-level time requirements, on the one hand, and desirable or sufficient thresholds, on the other, may be illustrated by the following example. Suppose that households with incomes around the poverty line have only poor access to public transportation, while the better-off have excellent access. The disparity in access can mean that the poorer individuals spend more time shopping for essentials than the better-off. This would be reflected in our estimates of poverty-level time requirements. Obviously, we are not suggesting that it is desirable for the poor to spend more time commuting. As another example, the actual time spent on child care by households with income around the poverty line may fall below what may be considered adequate.

8. There are two alternative methods to ascertain the intrahousehold division of the household-level threshold time requirement of household production. First, we could assign some arbitrary proportions to individuals in the household. The simplest example of this route would have been if we were to assume an egalitarian household whereby the requirements were equally shared among its members. We rejected this alternative, as it seemed unrealistic and somewhat unreasonable. Second, we could impute the intrahousehold

division using statistical methods. We rejected this alternative because the assumptions to be made in implementing the statistical method would raise a complex and contentious set of issues that have little prospect of being settled in a reasonably satisfactory fashion. Further, it would add an additional layer of measurement error to our estimates. In future work, we plan to test the sensitivity of our principal findings to the methods of determining the intrahousehold division.

9. The exact nature of this assumption can perhaps be elaborated by means of an example. We estimated from our data that the threshold time requirement for a household with two adults and two children in Buenos Aires was 83 hours per week. Suppose that we observe a household in the Buenos Aires datafile with two adults and two children. The adults perform, respectively, 10 and 30 hours of household production per week, and children do no housework. Our procedure would assign 21 hours per week to the first adult (one-fourth of 83) and 62 hours per week to the second adult (three-fourths of 83) as the required hours of household production.

10. An analogy may clarify the issue. Suppose that our interest is in measuring the nutritional deficiency of individuals and households. We choose the individual as the unit of analysis but we also wish to characterize the nutritional status of households. An often-used metric in such an exercise is the gap between the actual caloric intake of the individual and the caloric norm. The individual would be considered undernourished if their caloric intake was below the norm. If we were to define the nutritional deficiency of the household to which the individual belongs, we would add up the nutritional deficits of individuals in the household. Alternatively, if we were to also include the possible nutritional surplus of other individuals in the household with undernourished individuals, we would end up with an underestimate of nutritional deficiency suffered by the members of the household. Indeed, if the sum of nutritional surpluses were to exceed the sum of nutritional deficits, we could end up characterizing the household as "overfed," even though it consisted of an undernourished individual (or individuals). This does not mean that, in designing policies to ameliorate malnourishment, we should neglect the existence of individuals with nutritional surpluses who live with undernourished individuals. But, we should not assume automatic reallocation of food within the household when describing the extent of malnutrition faced by the household.

11. The statistical matches and microsimulations that underpin the results here are described fully in Masterson (2011) and Masterson (2012), respectively.

12. It should be noted that choosing the household as the unit of analysis is unlikely to reveal this type of time poverty.

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Appendix

In order to produce the dataset required to estimate the measure for each country, we first combine two distinct surveys: a time-use survey and a household income survey. The table below provides information on the specific surveys used in this study.

The method used to combine them is statistical matching, whereby we identify individuals in the time-use survey ("donors") who are most similar to individuals in the income survey ("recipients"), and carry over their time-use data. This is done in matching cells constructed using both household characteristics (the number of children and the number of adults in the household, presence of at least one nonemployed household member, an indicator of nearness to official poverty status, household income, and, in the case of Mexico, rural/urban location) and individual characteristics (sex and labor force status). The similarity of individuals within these cells is calculated using propensity scores based on other characteristics that were available in both surveys (e.g., age and educational attainment).

The full-time employment simulation was done by using the information in the synthetic dataset created in the matching process described above. We first identified all eligible adults (not in the military, retired, in school, or disabled) who were not employed full time (25 hours or more weekly). Then we identified all the adults who were working full time. Using multinomial logistic regressions of industry and occupation run on the donor pool, we predicted the likeliest industry and occupation for persons receiving jobs in the simulation. We then employed a three-stage Heckit procedure to impute hours and wages for recipients and donors. We used these imputations and other information to match recipients with donors in a hot-decking procedure to transfer usual hours and earnings. Since the transition of the recipient pool into full-time employment entails shifts in the

shares of household production of all members of households with job recipients, we then performed another hot-decking procedure to transfer hours of household production from individuals in the original synthetic dataset who were working full time and in a household in which all eligible adults were working full time, to all the members of households in which at least one person received a job in the first stage. With these steps completed, we then recalculated the individuals' shares of required household production, individual time deficits, and adjusted poverty lines for households. We then analyzed the new distribution of LIMTIP and compared it to the actual distribution in order to assess the first-order impact of such a shift in employment in each country.

Country	Income Survey	Time-use Survey
Argentina	Encuesto Annual de Hogares (EAH), 2005	Encuesta de Uso del Tiempo de la Ciudad de Buenos Aires (UT), 2005
Chile	Encuesta Caracteristización Socioeconómica Nacional (CASEN), 2006	Encuesta Experimental sobre Uso del Tiempo en el Gran Santiago (EUT), 2007
Mexico	Encuesta Nacional de Ingresos y Gastos de los Hogares (ENIGH), 2008	Encuesta Nacional sobre Uso del Tiempo (ENUT), 2009

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In 2006–07, Antonopoulos headed up a team of Levy Institute researchers studying the impact of public employment guarantee schemes (EGSs) on pro-poor development and gender equality. The project, supported by a grant from the UNDP, consisted of a pilot study exploring the synergies between EGSs in health and education and unpaid work—including unpaid care work—in South Africa. In 2010, she worked closely with the National Women's Institute (INMUJERES) of Mexico toward a similar initiative whose aim was public service job creation primarily for women in rural areas in Mexico. With other Levy scholars, Antonopoulos was also involved in developing the Levy Institute Measure of Time and Income Poverty and applying it to the study of poverty in Latin America. Currently, she is leading a team of Levy scholars in advising the Institute of Labour of the National Federation of Trade Unions (INE-GSEE) to implement a newly established emergency ELR program in all regions of Greece, funded by the Ministry of Labor and Social Protection.

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