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CAN CHILD-CARE SUBSIDIES REDUCE POVERTY? ASSESSING THE KOREAN EXPERIENCE USING THE LEVY INSTITUTE MEASURE OF TIME AND INCOME POVERTY

AJIT ZACHARIAS, THOMAS MASTERSON, and KIJONG KIM

Contents

3 Preface

Dimitri B. Papadimitriou

4 Can Child-care Subsidies Reduce Poverty?

Ajit Zacharias, Thomas Masterson, and Kijong Kim

18 About the Authors

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Preface

Korea's child-care voucher program was originally developed in response to the changing pressures on Korean households with children. Korea's labor market, once notable for its tradition of lifelong employment, was transformed by the Asian financial crisis of 1997 and is now characterized by greater job insecurity, temporary work, and a much larger number of dual-earner households. In recent decades, women have increasingly joined the paid labor force, but they have continued to shoulder a disproportionate share of household work, putting additional time pressure on all working women, especially mothers. As the authors of this policy brief show, the combined effect of these trends is that many employed Korean women effectively face a "double shift": paid employment followed by a second shift of household production. Recognizing these trends, and the adverse effects they hold for women, children, and working families, Korea implemented the Child Care Subsidy program in 1992, with the aim of reducing the financial burdens on low income families associated with purchasing child-care services.

In 2013, the child-care voucher program was revised. The new law makes the voucher system universal—a welcome change, but it offers a fixed benefit for all families with children aged six and younger. While this has expanded access to child care, it may have the unintended consequence of reducing access to child care for some of the most time-stressed families, particularly dual-income households with young children. Thus, the impact of child-care services on time and income poverty represents a critical linkage for assessing the effectiveness of the program. This is a question ideally suited to the Levy Institute Measure of Time and Income Poverty, or LIMTIP.

Unlike standard measures of poverty, LIMTIP recognizes that, in addition to income, household economic well-being relies upon the daily activities required to meet basic needs (e.g., preparing meals, doing household chores, and caring for children). When members of a household lack the time to adequately complete these tasks, they must either purchase substitutes (such as child-care services) or do without. These individuals suffer from time poverty. Households that earn enough money not to be officially classified as poor but with time deficits too large to be covered by their income are referred

to as the "hidden poor." The overall LIMTIP poverty rate for employed households (i.e., households in which the head and/or spouse is employed) in 2008 was 7.9 percent, versus the official rate of 2.6 percent. The gap implies that Korea's hidden poor represent over two million individuals. Dual-income households saw the greatest increase in poverty when measured using the LIMTIP: four times the official poverty rate. The analysis shows that outsourcing of child care (partly funded by vouchers) reduced the overall LIMTIP rate to 7.5 percent and reduced the number of hidden poor individuals to 1.8 million. While these results demonstrate that the problem of time poverty extends beyond child-care needs, the impact of public provisioning through the voucher program clearly has had a positive impact on families with children. This can be more clearly seen in the case of families that outsourced child care: their measured income-poverty rate would have been substantially higher if outsourcing was not accounted for (5.9 percent versus 3.1 percent).

Based on these and other findings, the authors recommend changes to the universal voucher program, including increased funding, to restore some of the progressivity of the means-tested program, create incentives to expand the supply of child care, and provide additional support for related programs (e.g., after-school programs). In addition, because child care is embedded in larger economic and cultural conditions, the authors also call for greater efforts to improve working conditions, and for Korea to engage in a national dialogue on gender, work, and family issues. While the authors recognize that an improved child-care voucher program will not solve the gender disparities or time deficits of all working families in Korea, it is an immediate and practical step that will simultaneously address the needs of children, support working families, and foster gender equality.

It is our hope that these findings, conclusions, and recommendations will stimulate a discussion centered on the needs of children, the changing patterns of work, and gender inequality as Korea looks to the welfare of its current and future citizens.

As always, I welcome your comments.

Dimitri B. Papadimitriou, *President*
August 2014

Introduction

Since the 1997 Asian financial crisis, lifetime employment and single-breadwinner households have given way to increased job insecurity, flexible work arrangements, and rapid growth in dual-earner households in Korea. Korea is also ranked third among OECD (Organisation for Economic Co-operation and Development) countries in terms of work hours. Add to these factors rising labor force participation by women, but little change in the highly unequal division of household production that disadvantages women. This has created new challenges for Korean women, many of whom face a double shift each day; and dual-earner families, particularly at lower income levels, who struggle to create or earn enough to purchase the goods and services a household requires to maintain a minimum standard of living. This has created new challenges in ensuring that children receive developmentally appropriate child care. The lack of access to child care, either because of a lack of supply or because of the cost, represents an obstacle to economic well-being and the health of Korea's children and families today and in the future.

Recognizing the implications of the heavy burden of care work on women's well-being and employment, public child-care provisioning, via a voucher system for low-income families, was introduced in 1992. The program has expanded over time, and was transformed in 2013 into a universal child-care voucher program for all children aged six and younger. The voucher program amounted to 15 percent of public assistance and social service expenditures at the national level in 2013. In terms of money and time, public provisioning reduces the private cost of child care. Therefore, it can lower the incidence and depth of both income and time poverty, especially among households that would not have been able to afford the full cost of child-care services. Furthermore, in conjunction with private purchases of child-care services, it can allow some parents to obtain the time to do the other necessary household production work or increase their labor market participation.

Given the program's goal of alleviating financial and time pressures, it is important to evaluate how the program affected the time allocation and income of those who received public support. However, the official poverty measure cannot capture the positive impact of the voucher policy on well-being in terms of time or income because of its exclusive focus on money income, and because it does not account for out-of-pocket child-care expenditures. To address this deficiency, this study employs the Levy Economics Institute Measure of Time and Income

Poverty (LIMTIP) for Korea, a two-dimensional measure of time and income poverty. LIMTIP captures the hardships that stem not only from the lack of income but also from time deprivation (Zacharias, Masterson, and Kim 2014).

The goal of this study is to (1) assess the level of poverty using LIMTIP, (2) analyze the impact of the voucher program on reducing time and income poverty in 2008, (3) draw inferences about the impact of the 2013 revision of the program, and (4) offer policy recommendations to support the success of the program. Our estimates are for 2008 because it represents the latest year for which data on time use—a necessary source of information to gauge time poverty—and income can be combined. We begin with a brief overview of recent trends in the Korean labor market to contextualize our study and its findings.

Recent Labor Market Trends

Two financial crises and the period of jobless growth that followed them transformed the economic and social foundations of Korea. Massive firm closures and the adoption of liberal labor market policies since the 1997 Asian financial crisis have transformed the employment and living conditions of millions of Korean workers. Underemployment has become common as a result of the rapid growth of part-time employment. A new class of “irregular” workers, performing the same jobs as “regular” workers but without their full benefits and higher pay, has emerged as a result of labor market segmentation (Kim and Park 2006).¹ The ratio of irregular to regular employed workers was 36.7 percent in 2001 and grew to 58.7 percent by 2004. The ratio gradually declined to 47.7 percent in 2013, due in part to weak labor demand in recent years (Seong 2013). Allowing easier worker dismissal practices while keeping the old age-based seniority system of promotion within firms has introduced new sources of job insecurity, created higher barriers to finding employment, and replaced traditional lifetime employment practices. The downward pressure on wages has forced many workers to extend their working hours, increasing what were already the third-longest working hours within the OECD countries.

According to a recent OECD estimate, Koreans spent about 2,163 hours annually at the job in 2013, a level that is more than 20 percent higher than the OECD average. The OECD also estimated that Korea ranked third from the bottom (above Mexico and Turkey) in terms of work-life balance among 34 OECD countries. Poor performance by Korea was due to the high share

of individuals working long hours (50 hours or more). According to the latest available comparative data, up to 27 percent of employed Koreans worked long hours, with higher proportions found only in Mexico and Turkey among OECD countries.

*Faced with long work hours, many workers find themselves in a situation of time deficit with too little time for their families, socialization or even rest.*² Time deficits pose an especially large challenge for low-income households that cannot afford to purchase substitutes for the goods and services they do not have time to produce themselves, including child care.

The transformation of the Korean economy has also witnessed the entry of more women into the labor market. Women's labor force participation rate has followed a gradual upward trajectory since 1997, rising from 47.1 percent to 53.9 percent in 2009, and to 55.6 percent in 2013. During the same period, men's participation rate remained steady between 77 percent and 78 percent. The increase in women's participation rate was associated with the increase in their employment rate from 45.2 percent to 52.2 percent between 1997 and 2009, reaching 53.9 percent in 2013.³ Time deficits (as discussed below) hit employed women particularly hard because of strong gender inequality in how household responsibilities are shared. Before the Asian financial crisis, the widespread practice of the lifetime employment guarantee sustained gender inequality because a male breadwinner was able to provide for the whole family while his spouse took care of the home and dependents. Despite the decline of the lifetime employment guarantee and greater participation of women in the labor market since the crisis, the unequal sharing of household responsibilities has persisted and lowered the well-being of many, in particular among women with young children.

The transformation in the conditions of employment and poverty since the 1997 Asian financial crisis, in combination with the policy responses in Korea, warrants a reconsideration of the official measure of poverty. We argue that policies to combat poverty and promote gender equality require a deeper and more detailed understanding of the linkages between the conditions of employment, unpaid household production, and existing arrangements of social provisioning—including social care provisioning. This nexus creates distinct, binding constraints for different types of households and asymmetric gender implications. Antipoverty policies can improve their effectiveness considerably by taking this nexus into account. In the next section, we outline a measurement framework that can shed light on these linkages.

Child-care Provisioning, Time Deficits, and Income Poverty: A New Measurement Framework

We begin by specifying the time requirements for household production.⁴ This is defined as the amount of time that a household with income around the official poverty line needs to spend on household production to meet its basic needs.⁵ We define the requirements in this manner because our primary interest lies in addressing the blind spots in the assessments of the economic well-being of low-income families that stem from neglecting their household production requirements. We believe that our approach to defining time requirements is similar in principle to identifying, say, poverty-level housing needs or daily nutritional requirements.

In practice, some of the time requirements placed on the members of the household may be reduced via a variety of means. Wealthier households may hire nannies or domestic servants to meet their household production needs. Purchases of market substitutes such as restaurant meals or the services of babysitters can also reduce the requirements. Likewise, the help of relatives in taking care of young children might be used to meet household care needs.

In our study, an attempt was made to account for the child-care vouchers and out-of-pocket child-care expenditures. Accordingly, we took into consideration the reduction in the time requirements for each household that came about by “outsourcing” child care—the use of daycare center services for young children (typically, aged six years or younger) obtained via the vouchers and/or household expenditures on child-care services.⁶ The voucher program in 2008 was limited to households with incomes below the average for urban households.⁷ Eligible households received a voucher for obtaining services at daycare centers; the monetary value of the voucher varied based on the income of the household. The subsidy effectively increased free time to the extent that it allowed time away from child-care duties at home. However, the voucher did not cover the full cost of the amount of child care necessary for holding a full-time job for most adults. Consequently, many families had to pay out of pocket for the additional care services they needed.

In the second step, we identified whether each household had adult members with sufficient time to meet the poverty-level time requirements. For this purpose, we estimated time deficits for individuals aged 18 to 70 years. To estimate time deficits, we began 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-generating activities, substitutable household production, personal maintenance, nonsubstitutable household production, and everything else (e.g., volunteer work, watching TV, and so on). We next defined the committed time of the individual as the sum of (1) the required weekly hours of personal maintenance and nonsubstitutable household production;⁸ (2) the required weekly hours of substitutable household production (net of the time relief from outsourced child care);⁹ 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.

These steps yielded information sufficient to estimate time deficits at the individual level. The household-level value of time deficits could then be obtained in a straightforward manner, by summing the time deficits of individuals in the household. We designated a household as time-poor if at least one member of that household had a time deficit.

Household time deficits can increase the measured rate and depth of income poverty because households with time deficits would need to purchase market substitutes to attain the same poverty-level consumption of households without time deficits. But the official poverty line does not account for such expenditures, and therefore understates the level of poverty for households with time deficits; it does not account for the income required to reach poverty-level consumption. To remedy this, we modified the official threshold by adding the monetized value of the household time deficit. We assumed that the hourly value of the time deficit was equal to the average hourly wage of domestic workers, an assumption that is widely made in research on the valuation of household production. Insofar as outsourced child care costs the household money, the income threshold of the household has to be raised by an appropriate amount. Because our modification of the official poverty line consists of the addition of the monetized value of the time deficit, it stands to reason that the outlays on child care should be taken into account to the extent that they reduce the time deficit of the household. That is, the purchased hours of child care to be reckoned in the adjustment of the income threshold should be capped at the time deficit that the household would have faced without any child-care expenditure. Both the official poverty line and the poverty line as adjusted for the value of time deficits were compared against household income to assign poverty status. All estimates from our study are for the year 2008.¹⁰

In the next section, we present our results, which highlight the effects of excessively long working hours and the remarkably unequal distribution of household responsibilities between men and women. Moreover, we show how much the outsourcing of child care through private purchases and the voucher program has contributed to the reduction of time and income poverty.

The Interaction of Long Hours at the Job, Low Income, and Unequal Burdens at Home

Hours of Employment, Time Deficits, and Earnings

Time poverty in Korea is almost exclusively a phenomenon restricted to employed persons: 45 percent of employed persons experienced a time deficit. We observe a strong positive correlation between the incidence of time poverty and the weekly hours of employment for both men and women (Figure 1). But the overall gender gap was fairly large: 33 percent of men were time-poor, compared to 55 percent of women. As can be seen in Figure 1, the gap was prevalent in every time interval, except in the very bottom (less than 20 hours) and top (61 hours or more) intervals.

Our analysis shows that women are much more prone to time deficits than men. Roughly half of employed men and women worked 36 to 50 hours per week. Here, the rate of time poverty among women was nearly *four times* as high as among

Figure 1 Incidence of Time Poverty by Weekly Hours of Employment and Sex (in percent)



Source: Authors' calculations

Figure 2 Time Poverty Rate by Earnings Quintile and Sex (in percent)

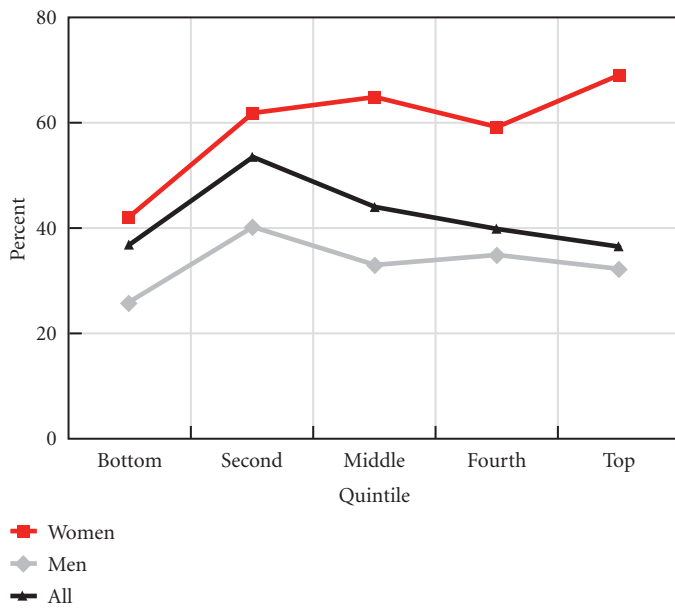
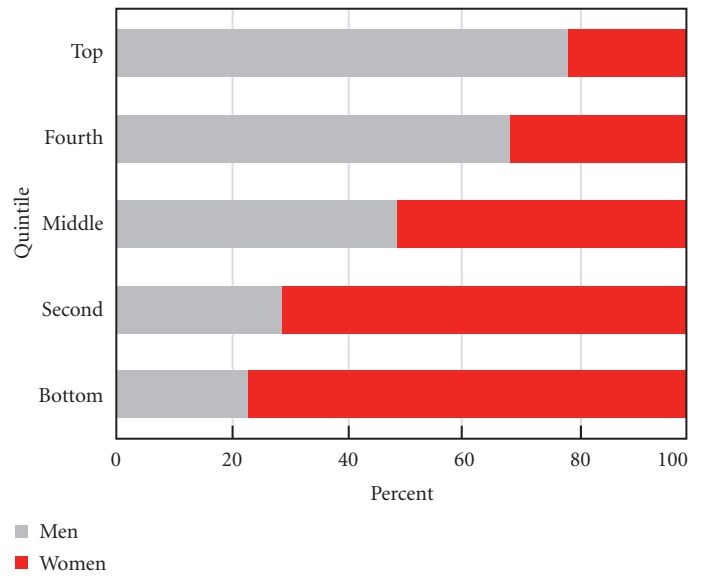


Figure 3 Composition of Earnings Quintile by Sex (in percent)



Note: Earnings quintiles were calculated using the data on all employed persons with positive earnings. However, time poverty rates and composition of quintiles were calculated using the data on all employed persons.

Source: Authors' calculations based on the statistically matched Welfare Panel–KTUS file (Masterson 2014)

men. Despite women's lower employment rate (51 percent, or 24 percentage points lower than men), they represent a disproportionate share of time-poor employed persons: out of roughly 9.4 million time-poor persons, the majority (nearly 4.9 million, or 53 percent) were women.

Gender inequality explains the “double shift” faced by the Korean working woman. The greater time poverty of women stems from the large margin by which women surpass men in the weekly hours of required household production (approximately 25 hours versus 9 hours in all intervals of hours of employment). Thus, while longer hours at the job rather than high household production hours explain the positive correlation between hours of employment and rates of time poverty, the gender inequality in hours spent on household production explains the gender gap in rates of time poverty.

In the absence of outsourcing of child care of young children, time poverty rates would have been 59 percent (compared to the actual rate of 54 percent) for employed women and 36 percent (compared to the actual rate of 33 percent) for employed men. The voucher program, as we pointed out before, supported part of this outsourcing. If outsourcing were not taken into account, the

number of time-poor employed persons would have been higher by about 752,000, or 8 percent. Just over half of these individuals were women. It might seem that more women would benefit, because of the unequal burden of household production that they face; but because men have correspondingly lower time deficits, they are likelier to be lifted out of time poverty by the availability of child-care vouchers. We next examine the incidence of time poverty, taking into account child-care outsourcing, across the earnings distribution.

Contrary to the preconception held by some “busy” well-paid professionals and “laid-back” poor workers, the incidence of time poverty declined among all employed adults as their earnings increased: 54 percent in the second quintile and down to 37 percent in the top quintile (Figure 2). The decline is due to the larger share of men in the higher earnings quintiles and their lower rates of time poverty, while women are populated disproportionately in the lower earnings quintiles, with higher poverty incidence than men overall (Figure 3).

For women, time poverty rates do not vary by much above the second quintile, while for men the rate of time poverty declines steadily from the second quintile on.

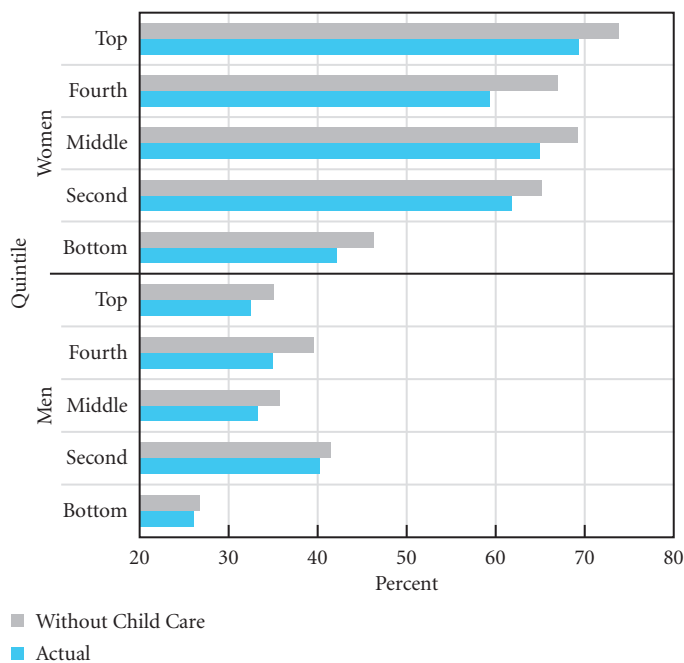
Purchasing child-care services does more to reduce time deficits of higher earners than of lower earners. A comparison of the time poverty rates that would have existed without child-care outsourcing with actual rates is shown in Figure 4. While the actual rates are lower for both men and women in all levels of the earnings distribution, the decline brought about by outsourcing is larger for those at the higher quintiles. This is partly due to the fact that the higher-paid workers can afford more child care. Additionally, the declines in time poverty in the bottom 40 percent of the earnings distribution resulted from the fact that earners living in households that outsource child care tend to be more in the top 60 percent than in the bottom 40 percent of the earnings distribution.¹¹

The impact that time deficits may have on the income poverty status of time-poor, low-income earners and their families can be seen by considering the ratio of the monetized value

of the time deficit to earnings, expressed in percentage terms. It indicates the proportion of earnings that a *time-poor* worker would have to spend on market substitutes to compensate for the time deficit.

Our estimates show that, in the absence of child-care outsourcing, the average female worker in the bottom quintile would have to spend almost all (96 percent) of her earnings on purchasing market substitutes (Figure 5). Outsourcing child care reduced this burden slightly, to 82 percent. For her counterpart in the second quintile, the values of the ratio with and without child care were 42 percent and 46 percent, respectively. The average male worker in the bottom two quintiles also fared poorly in terms of this ratio, although his situation was better than that of his female counterpart due to the lower time deficits and higher earnings. Even for those with “middle-class” earnings (i.e., those in the middle quintile), the ratio was as high as 16 percent for men and

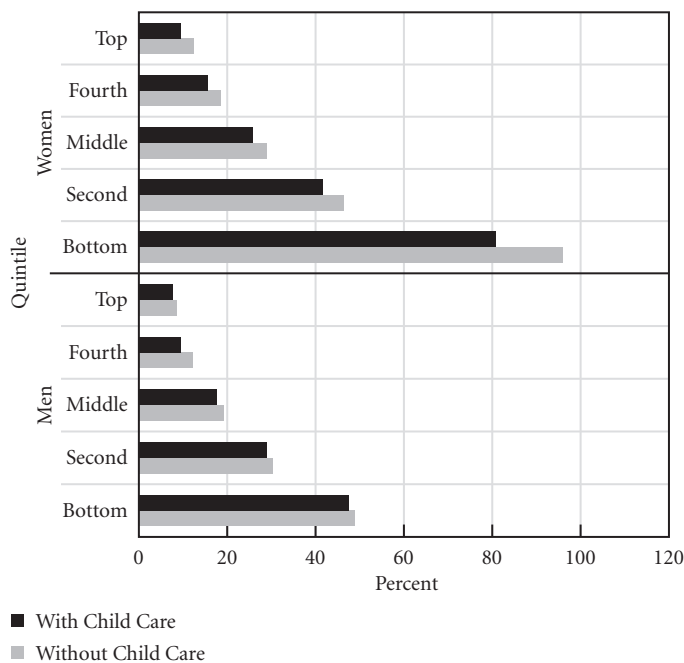
Figure 4 Time Poverty Rates (in percent) by Sex and Earnings Quintile: Actual vs. Without Outsourcing of Child Care



Notes: (1) The bars labeled “Without Child Care” represent hypothetical rates of time poverty that would have prevailed if all families did not outsource child care. (2) Earnings quintiles were calculated using the data on all employed persons with positive earnings. However, time poverty rates were calculated using the data on all employed persons.

Source: Authors’ calculations based on the statistically matched Welfare Panel–KTUS file (Masterson 2014)

Figure 5 Median Values of the Ratio of Monetized Value of Time Deficit to Earnings with and without Outsourcing of Child Care, by Sex and Earnings Quintile (in percent)



Notes: (1) Earnings quintiles were calculated using the data on all employed persons with positive earnings. (2) The ratios were calculated for persons with positive earnings who would have been time poor in the absence of child care outsourcing.

Source: Authors’ calculations based on the statistically matched Welfare Panel–KTUS file (Masterson 2014)

27 percent for women, despite factoring in the time relief afforded by outsourced child care. It should be noted, however, that our accounting is one-sided here, because we are not deducting out-of-pocket child-care expenses from earnings in the estimates shown in Figure 5, though that is accounted for in the LIMTIP. If some assumption were made regarding the division of child-care expenditures between earners in the household, (e.g., expenditures were shared between the husband and wife according to their shares in total household earnings), the bars labeled “With Child Care” would be closer to those labeled “Without Child Care.” Even without any such assumption regarding the division of child-care expenditures between the earners in the household, it appears that child-care outsourcing has had only small effects on the ratios in all quintiles for both time-poor men and time-poor women.

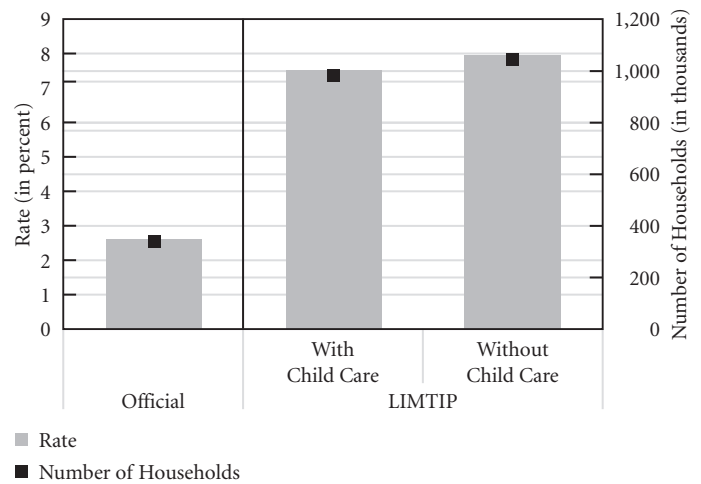
Time deficits can create income poverty in many families with low-wage workers. Time deficits arise not merely due to the time demands placed by young children on working parents. Time deficits resulting from long hours at the job as well as other care responsibilities (including caring for children older than six years) also shape the incidence and depth of time deficits. Additionally, the potential of time deficits to become impoverishing is greater in households with low-wage workers because earnings constitute the overwhelming source of income for low- and moderate-income nonelderly households.

Time and Income Poverty of Households

*The LIMTIP income poverty rate for employed households (i.e., households in which either the head or the spouse is employed) was roughly three times higher than the official poverty rate: 7.5 percent versus 2.6 percent (Figure 6).*¹² If we had not accounted for child-care outsourcing, the LIMTIP income poverty rate would have been even higher, at 7.9 percent. Clearly, official poverty lines understate the income requirements for households with time deficits. The high incidence of time deficits among the employed population and the substantial monetary value of time deficits relative to earnings for people with low-to-moderate earnings explain the discrepancy between the official and LIMTIP poverty rates.

The hidden poor (i.e., those who fall below the LIMTIP income poverty line but are above the official poverty line) consist of nearly 640,000 households encompassing 1.8 million individuals. Not accounting for child care would have increased the size of the hidden poor to about 700,000 households consisting of a little

Figure 6 Income Poverty: Official vs. LIMTIP



Note: The bars indicate the rate of poverty and the markers located on top of the bars indicate the number of poor households.

Source: Authors’ calculations based on the statistically matched Welfare Panel-KTUS file (Masterson 2014)

over two million individuals. Clearly, ignoring time deficits results in a serious undercount of the income-poor.

We found that the size of the income deficit (the difference between the poverty line and income of the poor household) was about 1.8 times higher than suggested by the official estimates when time deficits were taken into account (434,000 won compared to 250,000 won per month). Our finding demonstrates that apart from the size of the income poor population, the official poverty thresholds underestimate their unmet income needs.

Dual-earner households saw the greatest increase in poverty as measured by LIMTIP—four times higher than the official rate. The LIMTIP poverty rate for male-breadwinner households was 1.9 times higher than the official rate. Correcting the poverty lines for time deficits increases the poverty rate for all types of households, as shown in Table 1. The largest proportionate increase occurred for dual-earner (“Employed Husband and Wife”) households, while the smallest increase was found for male-breadwinner (“Employed Husband and Nonemployed Wife”) households.

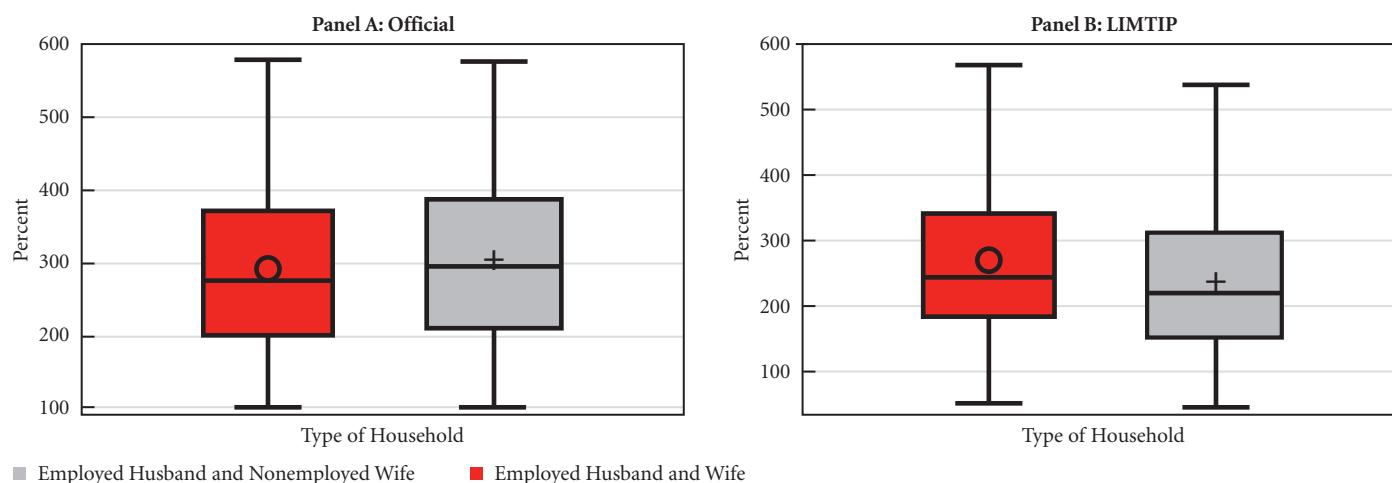
Dual-earner households that appeared to face roughly the same rate of poverty as male-breadwinner households are actually nearly twice as prone to poverty. Dual-earner households generally have higher household incomes than male-breadwinner households, but they experienced higher rate of hidden poverty

Table 1 Official and LIMTIP Income Poverty Rates of Employed Households by Type of Household (in percent)

Type of Household	Official	LIMTIP		Share in the Total Number of Households
		Actual	Without Child Care	
Employed husband with nonemployed wife	2.1	3.9	4.4	35
Employed husband and wife	1.9	7.5	7.8	39
Employed wife with nonemployed husband	7.5	20.6	21.3	6
Unmarried employed male head	2.3	7.3	7.3	10
Unmarried employed female head	4.7	12.3	13.3	10
Total	2.6	7.5	7.9	100

Source: Authors' calculations based on the statistically matched Welfare Panel–KTUS file (Masterson 2014)

Figure 7 Distribution of the Ratio of Household Income to Poverty Line among Officially Nonpoor Households, by Poverty Line and Type of Household (in percent)



Note: The length of each box represents the distance between the 25th and 75th percentiles of the distribution. The horizontal line in each box represents the median and the marker shows the mean of the distribution. The vertical lines stretching from the top and bottom of each box extend toward the maximum and minimum values of the ratio (we excluded the top 10 percent).

Source: Authors' calculations based on the statistically matched Welfare Panel–KTUS file (Masterson 2014)

because of their greater time deficits. The average male-breadwinner household had no time deficit, compared to about 17 hours for the average dual-earner household. The much larger size of the hidden poor among the dual-earner households is not because the officially nonpoor households among them have lower household incomes than the officially nonpoor male-breadwinner households. We can see this by computing the ratio of household income to the official poverty line and comparing the distribution of that ratio for officially nonpoor households in the two types of households.

As shown in the left panel of Figure 7, relative to the official poverty line, the incomes of dual-earner households generally fall in a higher range than their counterparts among male-breadwinner households. However, when the ratio is computed with the LIMTIP poverty line in the denominator, the position is reversed, as shown in the right panel of the figure.

Gender disparities in household work explain the greater time deficits found in dual-earner households compared to the male-breadwinner households. The average threshold hours of household

production for the two types were very similar, as were the hours spent on the job by the husbands in the two groups of households (Figure 8). However, wives in the dual-earner households have jobs and spent an average of 42 hours per week on the job. In spite of this, the division of household production between the spouses in the dual-earner households was as unequal as in the male-breadwinner households: the typical wife in both types of households had the same level of required hours of household production—34 hours per week—compared to only four hours for the typical husband.

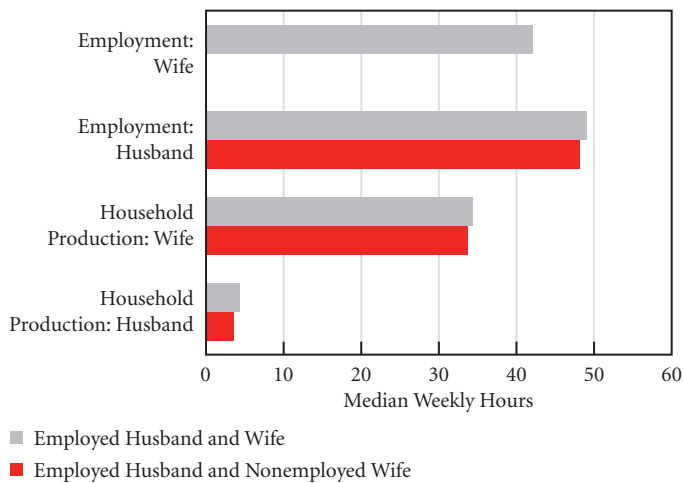
Outsourcing child care did help ameliorate the impoverishing effects of time deficits to some extent. This is reflected in the higher LIMTIP income poverty rates that would have resulted if we took no account of outsourcing (Table 1). The extent of hidden poverty (the gap between the official and LIMTIP poverty rates) is, therefore, somewhat smaller for all types of households (except households headed by single males) when outsourcing is taken into account. However, the evidence suggests that the impoverishing effects of time deficits on employed households as a whole can only be tackled partially via child-care outsourcing. This is because households with young children constitute only about 20 percent of dual-earner households and 22 percent of all employed households. Furthermore, the outsourcing of child care during the time spent at a job does not eliminate the need for child care at home, and the other responsibilities of running a home fall disproportionately to women.

The Role of Child Care in Reducing Time Deficits in Employed Households

The fact that child-care outsourcing does not dramatically alter the picture of time and income poverty among all employed households does not obscure its potential for doing so among families with young children. Approximately 22 percent of all employed households, or 2.8 million households, had children aged six years or younger in 2008. Of these households, 74 percent outsourced child care and 40 percent used public support in the form of a voucher to pay for part of their child-care purchases, while the remainder (34 percent) relied completely on self-financing of child care (Table 2). Only a small minority of households (7 percent) were able to meet their child-care needs entirely free of cost (i.e., all child care was provided via the voucher).

Both publicly subsidized and purchased hours of child care increased the available time (i.e., the number of weekly hours available after deducting the minimum required time for personal care

Figure 8 Hours of Employment and Required Household Production of Wives and Husbands by Type of Household (median weekly hours)



Source: Authors' calculations based on the statistically matched Welfare Panel-KTUS file (Masterson 2014)

Table 2 Type of Child Care Arrangement among Households with Young Children (less than seven years old)

Type of Household	Number of Households	Percent
No outsourcing	739,040	26
Private purchase only	980,579	34
Mix of voucher and private purchase	940,625	33
Voucher only	189,374	7
Total	2,849,618	100

Source: Authors' calculations based on Welfare Panel

and household production) of those who engaged in the care of young children at home. Just as with overall household production, women in households with young children spend a greater amount of time than men in caring for young children. As a result, the average addition to available time made by outsourced child care was greater for women than for men (28 versus 11 hours per week) (Figure 9).¹³

Outsourcing child care ameliorates the time deficit faced by men and women in employed households with young children. On average, it eliminates the time deficit for men and for women; the result is a reduction in time deficits. We found that without outsourcing

child care, the average available time for men was just about equal to their average hours of employment, while (employed) women had an average of about 16 fewer available hours per week relative to their usual hours of employment. Since the outsourcing of child care (including receiving a public voucher) did not depend on employment status, nonemployed women also had a higher amount of available time due to child-care outsourcing than they would have had otherwise.

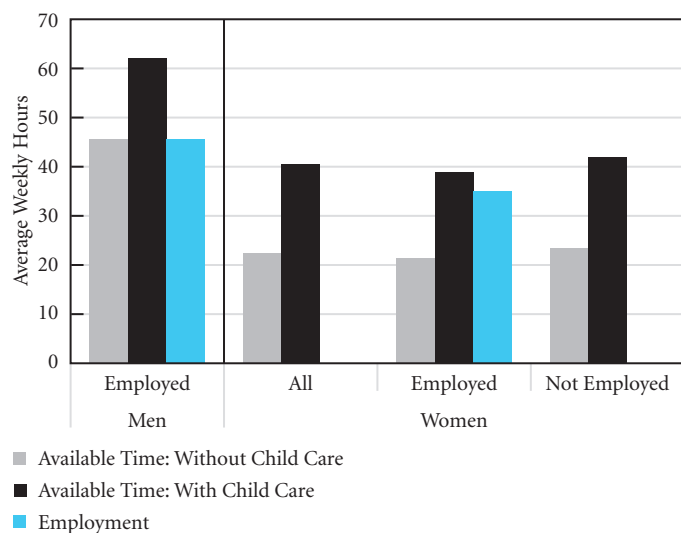
The increase in available time afforded by child-care outsourcing resulted in dramatically lower time poverty rates among men and women in households with young children. For employed men, the decline was from 43 percent to 26 percent. The effect was much more pronounced for employed women: the time poverty rate among them would have been 78 percent without outsourcing, as compared to the actual rate of 37 percent (Figure 10). While the extent of decline among men may appear counterintuitive to some, it is in fact quite consistent with the evidence that we have already seen regarding their lower time deficits in the absence of outsourcing and their also receiving a nontrivial amount of relief from outsourcing. As is also evident in Figure 9, outsourcing was

responsible for bringing down the incidence of time poverty among women and men in households that outsource care below that of their counterparts in other households.

The decline in time poverty due to outsourcing child care also led to a lower LIMTIP income poverty rate compared to the LIMTIP poverty rate that would have prevailed in the absence of outsourcing (3.1 percent versus 5.9 percent) (Figure 11). If we had not accounted for the outsourcing, the LIMTIP income poverty rate would have been 3.4 times the official poverty rate; accounting for child care brings it down to a level 1.8 times higher. As is also evident from the figure, households that outsource child care had a lower incidence of income poverty than other employed households with or without accounting for the outsourcing of child care. But the gap between the two groups becomes even wider with the accounting.

The proportion of child care that was financed publicly was lowest for employed women and highest for nonemployed women (Figure 12). This was at least partly due to the fact that means testing for the voucher program excludes many dual-earner households because of their nominally higher incomes. If the monetized value of their time deficits were taken into account

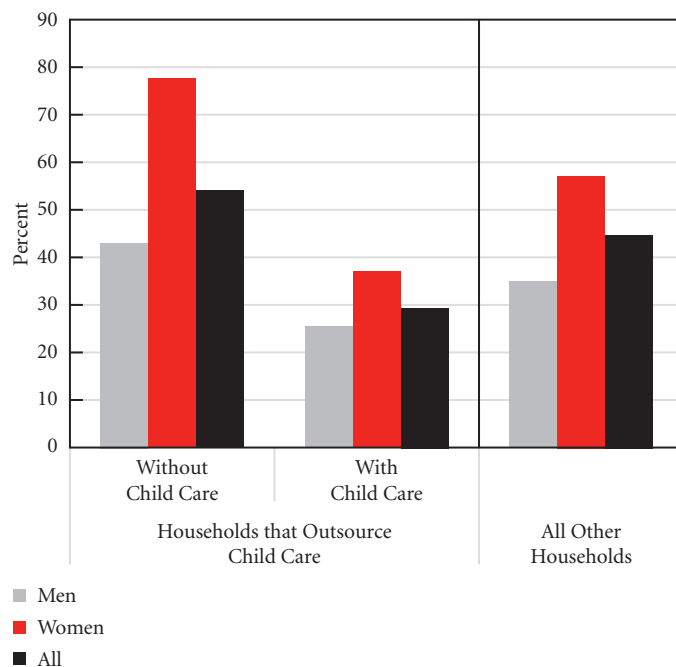
Figure 9 Available Time and Employment of Men and Women in Households that Outsource Child Care (average weekly hours)



Note: We have not shown the estimates for nonemployed men separately because they were a tiny proportion (less than 4 percent) of the total number of men.

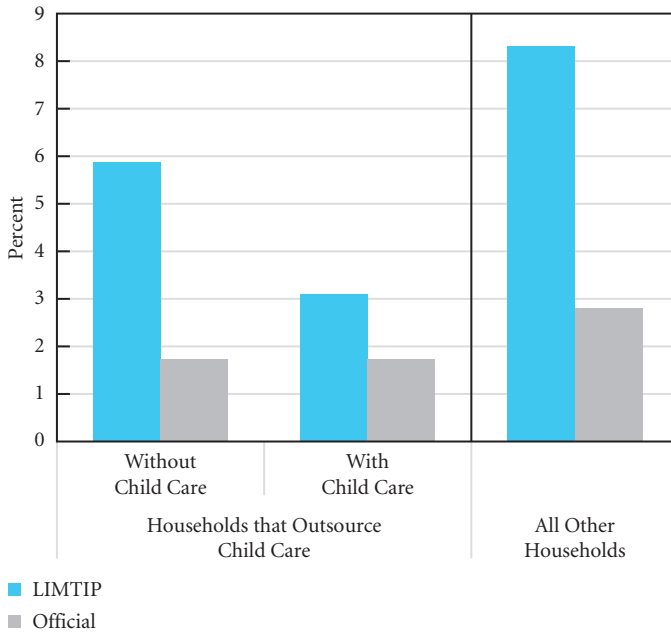
Source: Authors' calculations based on the statistically matched Welfare Panel-KTUS file (Masterson 2014)

Figure 10 Time Poverty Rates of Employed Men and Women in Households that Outsource Child Care and Other Employed Households (in percent)



Source: Authors' calculations

Figure 11 Income Poverty Rates of Employed Households that Outsource Child Care and Other Employed Households (in percent)

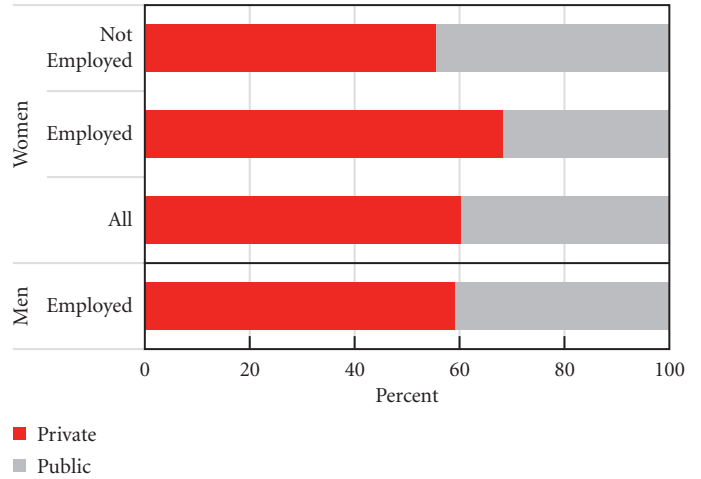


Source: Authors' calculations

in determining program eligibility, some additional households would have certainly benefited from the vouchers. On the other hand, the extent of time deficits among male-breadwinner households and their need for child-care outsourcing is comparatively smaller. This may account for the larger proportion of publicly financed child care among nonemployed women compared to employed women.

The voucher system, as it existed in 2008, did not meet the needs of many poor working women. We found that among employed women that lived in LIMTIP income-poor households with young children, a sizable 40 percent did not receive the voucher. More important, only a quarter of employed women that lived in LIMTIP income-poor households could meet their child care by means of the voucher alone. About half of them (48 percent) had to resort to a combination of voucher and out-of-pocket expenditures. On average, more than half (53 percent) of the child care outsourced by LIMTIP income-poor households was financed by their own out-of-pocket expenditures.

Figure 12 Share of Private and Public Expenditures in Financing the Increase in Available Time of Men and Women in Households that Outsource Child Care (in percent)



Note: We have not shown the estimates for nonemployed men separately because they were a tiny proportion (less than 4 percent) of the total number of men.

Source: Authors' calculations based on the statistically matched Welfare Panel-KTUS file (Masterson 2014)

Better Quality Jobs and More Care: Some Policy Considerations

Public Expenditures for Child Care

Our study has shown that the means-tested child-care voucher program in 2008 was effective in relieving time burdens and the impoverishing effects of time deficits among households with young children. As we noted in the introduction, the voucher program became universal in 2013. This is certainly a welcome development. Now all families with children five years old or younger are entitled to vouchers up to approximately \$380 per month for outsourced child-care services. Almost 1.5 million children were enrolled in the child-care centers, while over one million children received alternative direct cash transfers for exclusive parental care at home in 2013, according to the Korean child-care service's annual statistics.

Eligibility for the program should be universal, but we are concerned about the "one-size-fits-all" design of benefit levels. Families with young children are quite heterogeneous with respect to their available time and income. A dual-earner family will need a higher amount of outsourced child care than a traditional male-breadwinner family even if both households have an identical

number of young children. As a matter of fact, 37 percent of households with young children were dual-earner families in 2012 and they used outsourced child care for over eight hours a day on average. Meanwhile, single-breadwinner families constituted over 61 percent of the households with young children and used fewer than seven hours a day of outsourced child care in 2012. Among dual-earner families, differences do exist in terms of the hours spent at the job by husbands and wives (e.g., households with a full-time versus a part-time employed mother). Families with the same need for outsourced child care differ in terms of their level of income, and hence in the amount of out-of-pocket expenditures that they can afford to incur on child care.

Increase the supply of child care in a manner that is consistent with the needs of working families. If the supply of high-quality child care was abundant and benefit levels were set high enough to cover out-of-pocket expenditures for everyone, then these differences in terms of available time and income would matter less. But this is simply not the reality. There is a shortage of child-care services. Over 22 percent of the families currently using child-care centers were placed on a waiting list before they could enroll their child and experienced an average waiting period of 6.4 months. This can impose hardships on low-income working families with children, as they would be forced into a situation of incurring unaffordable out-of-pocket expenditures or curbing their labor force participation.

Improving the design of the voucher program should not come at the expense of its universality, as all children can potentially benefit from the care provided at the centers. However, it is also important to ensure access for employed parents, especially those who cannot afford private providers. The financial burden may put pressure on many lower-income mothers to reduce their labor market participation. Though they may return to the market once their children reach school age, the discontinuity associated with leaving the labor market to care for children is a permanent disadvantage for women's lifetime earnings and career path (see, e.g., Kim 2009 and Miller 2010). As much as the voucher system is aimed at increasing mothers' participation, assisting active women to develop or maintain a strong attachment to the labor market should be given attention in the current policy dialogue.¹⁴

Increase the benefit per child made available to low-income households (rather than the current formula that does not take household income into account) so that they have zero or minimal out-of-pocket expenditures on child care. To align the incentives of care providers with the full-time care needs of dual-earner

households, the financial support provided by the voucher should be based on total hours of care rather than a flat amount per child. This modification would deter providers from shunning children with full-time care needs. A possible method by which this negative effect could be minimized would be to make a certain minimum number of hours of care available to all (say, a half day) but to make additional care provision contingent on the hours of employment of parents. Such a change would offer low-income families considerable relief from time deficits and the financial hardship imposed by out-of-pocket expenditures on child care. In sum, the voucher program should be reimagined to achieve progressivity and encourage greater employment among women while maintaining its current universal eligibility.

Beyond Care Subsidies for Young Children

Support afterschool care programs to create more child care options for older children and their families. Though important in its own right, care of young children is not the only domain of household production for working parents. Preadolescent school-going children also require care. For working parents, especially those on the lower rungs of the income distribution, afterschool services can reduce time deficits and their impoverishing effects. Limited support (\$100 per month per child aged 12 years or younger) for afterschool care is currently in place, but the support falls short of actual costs for many families. Providing care at school after school hours could also provide extracurricular enrichment, if such programs are well supported.

Change the legal workweek. Government regulation of hours of employment can play an important role in reducing this crucial source of time deficits. The problem of time deficits is not confined to employed households with children. In fact, households with children constituted a slim majority (53 percent) of all income-poor, time-poor households, and all time-poor households, in our study.¹⁵ This points to the long hours at the job put in by parents and nonparents alike in Korea. The prevalence of long hours of employment discourages many married women with children from maintaining their ties to or returning to the labor market. A shorter-time arrangement at work, whether part-time or full-time with fewer hours, is necessary to address the time deficit for working women with children.

A variety of labor market interventions are required to improve earnings at the bottom of the distribution. Low earnings despite long working hours are the main mechanism by which time deficits become impoverishing. Those with better earnings can,

at least to some extent, offset the gaps in household production by the purchase of market substitutes. Institutional changes are called for to improve the collective bargaining power of labor and raise wages. Increasing minimum wage rates to account for the cost of market substitutes can provide a solid foundation for wage workers. Skills training, if properly directed to match local employers' demands, may improve the earnings of workers. Finally, it is important to strengthen direct transfers under the National Basic Living Security Act, the legal basis of social welfare policies in Korea, so that they prove adequate to attaining a decent standard of living for low-income families with insufficient earnings.

Collective action by women and men and the implementation of public policies that support gender equality can ameliorate time deficits and their impoverishing impact. Our findings indicate that the principal reason behind the gender disparity in time poverty among employed persons is not the hours of employment or the level of earnings. Even looking at groups with similar hours of employment or earnings reveals a markedly higher time poverty rate for women than for men. Therefore, it is the inequality in the division of household work between men and women that accounts for the gender disparity in time poverty. Increasing the economic empowerment of women through equitable wage policies and expanded employment opportunities can facilitate moving toward a fairer and more equal sharing of household responsibilities, resulting in the reduction of poverty and the improvement of the quality of life for all.

Conclusions

Our results show that publicly funded child-care vouchers can alleviate time poverty. Child-care outsourcing lifted over 750,000 employed individuals out of time poverty in 2008. Just over half of these were women, however, because men's time deficits tend to be lower than women's. Of course, the impact of child-care outsourcing on available time was much larger for women than for men. So the depth of time poverty was reduced more for women than for men. However, in spite of the beneficial effect of outsourcing, employed mothers were far more prone to time deficits than men because of the gender inequality in household production.

The impoverishing effect of time deficits can also be considerably reduced by the outsourcing of child care. We found that 5.9 percent of households that did outsource would have been income-poor if such outsourcing were not taken into account.

When it is accounted for, the percentage of income-poor households fell to 3.1 percent. However, the public financing of child care via the means-tested voucher system proved to be inadequate for many employed, low-income parents in 2008. Only a quarter of employed women that lived in LIMTIP income-poor households could meet their child-care expenses by means of the voucher alone. On average, 53 percent of the child care outsourced by LIMTIP income-poor households was financed by their own out-of-pocket expenditures.

We welcome the conversion of the voucher system from a means-tested benefit to a universal benefit in 2013 because all children can potentially benefit from the care provided at the centers. Yet, we believe that there are serious problems with the current system that, as in the earlier system, stem mainly from the fact that the amount of the benefit does not take into account the time available to the parents to provide care or their ability to incur out-of-pocket expenditures. Moreover, the amount of the benefit itself is rather low, and child-care centers are strained in their capacity. If the voucher payments were aligned with the child-care needs of individual families, particularly low-income and dual-earner households, we could expect to see larger reductions of time poverty (especially for women) and its impoverishing effects.

The problem of impoverishing effects of time deficits is not confined to employed parents of young children, nor does it originate entirely from the time needed for the care of young children. Our estimates show that the income poverty rate among all employed households was roughly three times higher than the official poverty rate when time deficits were accounted for: 7.5 percent versus 2.6 percent in 2008. Long hours at the job account for a great deal of the variations in time poverty rates among employed people. But the gender disparity in the incidence of time deficits (33 percent of men versus 56 percent of women) is largely due to the grossly unequal division of household production tasks among employed men and women. This is revealed by the fact that even when we look at men and women with similar hours of employment, the latter turn out to have much higher rates of time poverty. Time deficits become impoverishing when they are accompanied by low individual earnings and low family income.

On the basis of these and related findings, we have argued for a variety of measures that would help to reduce the problem of low pay and long hours of employment for a significant segment of Korean workers. They include a higher minimum wage, social assistance to overcome income deficits when earnings fall short, stricter regulation of hours of employment, and greater

enforcement of equal pay for equal work for men and women. The problem of unequal division of household production between men and women obviously cannot be dealt with directly by legislation. However, history shows that such norms can change as a result of collective action by women and men, and the implementation of public policies that support gender equality.

Notes

1. For instance, in 2009, the average daily workload was 8.5 hours among the regular workers, while it was 8.2 hours among the irregular workers.
2. Most of the working poor consist of irregular, temporary workers. On average, such workers earn only 55 percent as much as regular employees. The increase in the size of the working poor in the recent past is confirmed by the fact that the poverty rate of employed persons rose from 8.8 percent to 9.7 percent between 2006 and 2010 (KIHASA 2011).
3. Despite the growing presence of women in the labor market, these numbers are still below the OECD averages of 62 percent and 57 percent for participation and employment rates, respectively.
4. Our framework builds on previous attempts to account for time deficits in the definition and measurement of poverty (Vickery 1977; Harvey and Mukhopadhyay 2007). However, they have generally ignored gender inequality in the division of household production work. Our measurement framework attempts to overcome this limitation. Another distinguishing feature of our approach is that we do not rely on the standard neoclassical theory of time allocation. (For a discussion of alternative approaches, see Zacharias 2011.)
5. In constructing the thresholds, we defined the reference group as the households with at least one nonemployed adult and income around the poverty line. Our definition of the reference group was motivated by the need to estimate the amount of household production implicit in the official poverty line. Since poor households in which all adults are employed may not be able to spend the amount of household production time implicit in the poverty line, we excluded such households from our definition of the reference group. To calculate the thresholds, we divided the reference group into 12 subgroups based on the number of children (none, one, two, and three or more) and number of adults (one, two, and three or more). The thresholds were calculated on the basis of the average values of the time spent on household production by households in each subgroup of the reference group. The 2009 Korean Time Use Survey (KTUS) was the source of our estimates.
6. The hours “saved” by outsourcing child care were not reported in the survey. We imputed the hours in successive stages by utilizing the information on out-of-pocket child-care expenditures and the value of vouchers reported in the survey. Full details of the procedure are provided in Appendix B of the accompanying research report.
7. The income cutoff points vary by age of a child, family size, and the voucher amount—between 132 million and 460 million won in 2008. The maximum amount given as a voucher was 372,000 won.
8. The minimum required weekly hours of personal maintenance were estimated from the time-use survey (KTUS 2009) as the sum of the minimum leisure hours required and the weekly average of the time spent on personal care. We assumed that each individual needs an hour per day for nonsubstitutable household production activities.
9. The required hours of household production for the individual is a fraction of the household-level requirements that we defined in note 5 above. We determined this fraction on the basis of the observed shares of individuals in the household in the total time spent on household production by all members of the household. In a similar vein, to ascertain the reduction in requirements brought about by outsourced child care, we used the observed share of the individual in the combined total of the hours that all household members spent on caring for young children. A small proportion of households that outsourced child care did no “in-house” child care; that is, none of the members reported any time spent on child care. For these households, we approximated the individual shares using an imputation model. The details of the model are available from the authors upon request.
10. The measurement of time and income poverty requires microdata on individuals and households, with information on time spent on household production, time spent on employment, and household income. Good data on all the relevant information required are not available in a single survey. But good information on household production was available in the time-use survey (KTUS 2009), and good information regarding time spent on employment and household income was available in the 2009 Korean Welfare

Panel Study. Our strategy was to statistically match the Welfare Panel and KTUS surveys so that hours of household production could be imputed for each individual aged 10 years or older in the welfare panel survey (Masterson 2014). All of our estimates are for 2008 because the income data in the Welfare Panel are for 2008.

11. Just about a quarter of earners that live in families that outsource child care belonged to the bottom 40 percent of the national earnings distribution. In fact, roughly 90 percent of those in the bottom 40 percent of the earnings distribution were members of households without young children; that share was lower in the higher rungs of the distribution (69 percent in the fourth quintile and 76 percent in the top quintile).
12. Since time poverty is almost exclusively a phenomenon among employed persons, we focus our attention on the “employed” households, defined as households in which either the household head or spouse or both are employed.
13. Our assumption is that the hours outsourced would free up time for individuals in the household in the same proportion as they shared the total time spent by the household as a whole on caring for young children in the household.
14. The current law of child care dictates that the purpose of the law is, in part, to promote parental engagement in gainful economic and social activities.
15. The incidence of time poverty among households also did not show much variation with the number of children: it was roughly 57 percent among households with zero, one, or two children.

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