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# The Impact of Public Investment in Social Care Services on Employment, Gender Equality, and Poverty: The Turkish Case

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İSTANBUL TECHNICAL UNIVERSITY WOMEN'S STUDIES CENTER  
IN SCIENCE, ENGINEERING AND TECHNOLOGY  
AND THE LEVY ECONOMICS INSTITUTE OF BARD COLLEGE

İPEK İLKKARACAN, KIJONG KIM, and TOLGA KAYA

AUGUST 2015



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# THE IMPACT OF PUBLIC INVESTMENT IN SOCIAL CARE SERVICES ON EMPLOYMENT, GENDER EQUALITY AND POVERTY: THE TURKISH CASE

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**İPEK İLKKARACAN, KIJONG KIM, TOLGA KAYA**

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İstanbul, August 2015

ISBN 978-975-561-467-0

© İTÜ BMT-KAUM  
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[www.kaum.edu.tr](http://www.kaum.edu.tr)

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**Page Layout** Myra  
[www.myra.com.tr](http://www.myra.com.tr)

**Copyediting** Jonathan Hubschman and Barbara Ross

**Printing** İMAK OFSET  
Merkez Mah. Atatürk Cad. Göl Sok. No: 1 Yenibosna-İSTANBUL  
Tel: 0212 656 49 97  
Fax: 0212 656 29 26  
[www.imakofset.com.tr](http://www.imakofset.com.tr)

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## ► ACKNOWLEDGEMENTS

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This research project was made possible by the valuable support and contributions of several individuals and institutions.

Foremost, we are grateful to ILO Office for Turkey, the UNDP Country Office in Turkey, the UNDP Istanbul Regional Hub, UN Women Regional Office for Europe and Central Asia, and the Aydın Doğan Foundation for their financial support. Beyond financial support, Ozan Çakmak, Kadir Uysal, and Özge Berber Ağa at ILO Office for Turkey and Bharati Sadasivam at the UNDP Istanbul Regional Hub have made valuable contributions to the implementation of this research project by providing intellectual input and logistical support.

We are grateful to our colleague and Greece's Deputy Minister of Labor and Social Solidarity, Dr. Rania Antonopoulos, for her valuable support from the very beginning of this research project. Her expertise on the topic has been a strong guide for us. We want to thank Thomas Masterson at the Levy Economics Institute for his intellectual guidance on the microsimulation presented in this report. Our thanks also go to Lina Barokas at Istanbul Technical University (ITU) for her hard work in research assistance, Jonathan Hubschman and Barbara Ross at the Levy Economics Institute for English copyediting, Metin Çulhaoğlu for the Turkish translation, and Myra Communication Design Agency, particularly Engin Doğan for their contributions in design and publishing.

In our quest for the data necessary for the analytical undertaking of the project, we received valuable support from a series of individuals from various governmental agencies and NGOs. Our thanks go foremost to Yusuf Yüksel, Pınar Özel, and Gamze Tokman Malatyalı of the Ministry of Development; and to Enver Taştı, Tülay Korkmaz, and Kürşad Dosdoğru of the Turkish Statistical Agency, Orhan Ergün and Tuncay Koç of the Ministry of Education, Istanbul Province Directorate for National Education, Banu Tuncay Yıldız of the Ministry for Family and Social Policies, Nihal Şirin Pınarcıoğlu and İdil Soyseçkin of the KEIG Platform, and Yeşim Seviğ of Women Entrepreneurs Association of Turkey (KAGİDER).

Our thanks also go to Özer Gündüz and Ersan Alkan of IPSOS for their careful work conducting the field survey of child-care centers. We are most grateful for the administrative support to the project by Prof. Dr. Fatma Arslan and Sebahat Duran at the ITU Women's Studies Center and Bekir Kavut, Metin Ünal, and Hatice Kocatürk at the ITU Development Foundation.

Early findings of the research were presented at the Middle Eastern Economics Association (MEEA) Annual Conference on Inclusive Growth in Tunisia in March 2015 and the International Association for Feminist Economics (IAFFE) Annual Conference on Gender Equality in Challenging Times in Berlin in July 2015. We are grateful for the insightful feedback received from the participants of these sessions, most of which have been integrated into the final version of our report.



## ► PREFACE

We value the partnership of three United Nations (UN) agencies—the International Labour Organization (ILO), United Nations Development Programme (UNDP), The United Nations Entity for Gender Equality and the Empowerment of Women (UN Women)—in this collaborative research study between the Istanbul Technical University and the Levy Economics Institute of Bard College. We believe that this multilateral partnership reflects the scope of this research study, which stands at the intersection of various UN mandates, as also reflected in the Sustainable Development Goals (SDGs); namely,

- inclusive and sustainable development, and poverty alleviation;
- gender equality; and
- decent job creation.

This study aims to present a policy framework particularly for SDG target 5.4; its specific objective, which falls under the umbrella of SDG 5—“Achieve gender equality and empower all women and girls”—is “to recognize and value unpaid care and domestic work through the provision of public services, infrastructure, and social protection policies, and the promotion of shared responsibility within the household and the family.” Our research also addresses goals under the more general SDG 8—“Promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all”—which includes the specific objective of achieving, by 2030, “full and productive employment and decent work for all women and men” (target 8.5). Finally, our research speaks to SDG 10, which addresses the need to reduce inequality within and among countries by 2030 using the strategy outlined in SDG 10.1, which is to “progressively achieve and sustain income growth of the bottom 40% of the population at a rate higher than the national average”; SDG 10.3 ensures equal opportunity and reduced inequalities in outcomes, including the elimination of discriminatory laws, policies, and practices and the promotion of appropriate legislation, policies, and actions in this regard; and SDG 10.4 calls for the adoption of “policies, especially fiscal, wage, and social protection policies and progressively achieve greater equality” (see <http://sustainabledevelopment.un.org/focussdgs.html>).

The policy simulation undertaken in this study points to a specific fiscal priority, namely the expansion of institutional services for early childhood care and preschool education (ECCPE), and also, more generally, the expansion of social care services (for the elderly, the disabled, and the sick). ECCPE service expansion has been an emerging policy issue in Turkey, discussed mostly from the perspective of reducing constraints on female labor supply (and hence addressing the problem of very low female labor force participation) and also from the perspective of supporting child development. Yet the implications of public investment in the social care services sector with respect to short-run economic returns such as employment generation, promotion of gender equality through labor demand and poverty alleviation have been overlooked.

This report aims to contribute to policy debates on ECCPE expansion in Turkey by exploring its demand-side effects. We show that the fiscal prioritization of ECCPE expansion, and hence the building of a social infrastructure of care, over, for instance, investments in physical infrastructure/construction or cash transfers, presents an enormous potential for decent job creation, particularly in the female-dominated occupations and sectors. This in turn would promote gender equality from the demand side. Moreover, if such expansion takes place in a targeted manner, it also carries the potential for effective poverty reduction through stronger income growth for households in the bottom 40% of the income distribution.

We believe that beyond the Turkish context, the results of this study also have implications for policy debates in other countries in the region, most of which lack social care infrastructure. There is thus ample space for expansion of ECCPE and other social care service subsectors. Our findings are particularly relevant for a number of developing and transition economies in Europe and Central Asia, which have very limited provisioning of social care services, low female labor force participation, and/or high unemployment. A recent assessment by the UNDP Regional Bureau for Europe and the Commonwealth of Independent States (CIS) on poverty and inequality in the region points to the key role played by early childhood education for sustainable human

development and gender equality (UNDP 2014). The report shows that in countries such as Azerbaijan, Bosnia and Herzegovina, Kyrgyzstan, the Former Yugoslav Republic of Macedonia, Tajikistan, and Uzbekistan (in addition to Turkey), less than one-third of children are enrolled in preschools. Moreover, the enrollment rates have declined in Azerbaijan, the Former Yugoslav Republic of Macedonia, and Uzbekistan. We should note that some of these countries also suffer from very high unemployment rates, as much as 29% in Macedonia, 28% in Bosnia and Herzegovina, and 11% in Tajikistan and Uzbekistan; plus low female labor force participation rates—although higher than in Turkey—namely, in Bosnia and Herzegovina (34%), Macedonia and Montenegro (43%), Albania, and Serbia (45%) (WDI 2015). Very high poverty rates, as much as 38% in Georgia, 31% in Tajikistan, 25% in Kyrgyzstan and 24% in Armenia also present a substantial challenge to economic and social policy in the region (UNDP 2014).\*

The findings presented in this research report suggest that a gender-sensitive fiscal policy targeting social care service expansion has the potential for addressing these multiple problems. Beyond the better-acknowledged and well-debated results of such an expansion as a strategy to promote gender equality, support child development, and eradicate socioeconomic inequalities at an early age, this report also points to a short-run economic rationale to public investments in social care for providing solutions to jobless growth, high unemployment, low labor force participation, and rising poverty.

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\* Poverty line set at PPP USD 2.15/day; 2011 or most recent rates available (UNDP 2014, p. 11).

## ► EXECUTIVE SUMMARY

The social care service sector (i.e., care services for children, the elderly, the disabled, and the sick) remains an underdeveloped sector in Turkey. In terms of early childhood care and preschool education (ECCPE), an important subsector of social care, Turkey has the lowest rate of provisioning by a large margin among Organisation for Economic Co-operation and Development (OECD) countries. Recent research has revealed that the lack of high-quality, accessible social care services places significant constraints on female labor supply in Turkey, and is among the key factors that weaken women's labor market attachment. Beyond the much-debated female labor supply effects, this study evaluates a demand-side economic rationale for public investment in the social care sector by estimating its potential for employment creation, pro-women allocation of jobs, and poverty alleviation compared to the construction sector, which has been an engine of economic growth in Turkey in the past decade.

According to 2013–2014 figures, in order for Turkey to catch up with the average OECD preschool education enrollment rate among children under age 6, there is a need for 3.27 million additional places in preschool education programs. This corresponds to an estimated increase of 20.7 billion TRY (in 2014 prices) in expenditure on this sector. With such an expansion in the ECCPE sector, total expenditures would correspond to approximately 1.36% of GDP in 2014.

This study provides an evaluation of the new employment opportunities to be created by an additional 20.7 billion TRY expenditure on child-care centers and preschools. We compare the case of such an ECCPE expansion with an equivalent expenditure on physical infrastructure and public housing (i.e., in the construction sector). We estimate that an expenditure of this magnitude in the construction sector would create a total of 290,000 new jobs in construction and other sectors. Investing this same amount in the ECCPE sector, however, has the potential of generating 719,000 new jobs in ECCPE and other sectors (i.e., 2.5 times the number of jobs generated by the construction sector). While 73% of the new jobs created via an ECCPE expansion are estimated to go to women, as little as 6% of the new jobs created via a construction boom go to women. Nevertheless, in terms of absolute numbers, ECCPE

still creates a substantial number of jobs for men (195,463 jobs)—as much as 72% of the total number of male jobs created through construction (272,389 jobs).

More than half of the job recipients in ECCPE are women excluded from the labor market and engaged in domestic work (394,203 female homemakers are estimated to become employed), while in the case of construction the majority are unemployed men (237,032 unemployed men receive jobs). In terms of absolute numbers, however, the ECCPE expansion still creates more jobs for the unemployed (157,003 jobs for unemployed men and 95,744 jobs for unemployed women, amounting to a total of 252,747 jobs for unemployed people) than a construction boom of similar cost (237,032 jobs for unemployed men and only 5,263 jobs for unemployed women, amounting to a total of 242,295 jobs for unemployed people).

Beyond creating more jobs in total, more jobs for women and the unemployed, we find that an ECCPE expansion also creates more decent jobs than a construction boom. Of the ECCPE-generated new jobs, 85% are estimated to come with social security benefits, versus 30.2% in the case of construction-generated new jobs. In the case of construction, the new jobs created are predominantly (64.1%) occasional jobs without a contract, 24.6% are permanent jobs with a contract of unlimited duration, and 11.3% are temporary jobs with contracts of limited duration. These ratios are reversed for ECCPE, where 84% of the new jobs are estimated to be permanent jobs with a contract of unlimited duration, 10.5% are temporary jobs with contracts of limited duration, and only 6.1% are occasional jobs without a contract.

Our findings show that the impacts on poverty of both expansions are pro-poor in that the consequent increase in income is the highest for the bottom two household income quintiles. Yet more jobs go to workers below the relative poverty line in the case of a construction boom than in the case of an ECCPE expansion (92,356 jobs for the poor in a construction boom versus 49,797 jobs for the poor in a ECCPE expansion), resulting in a net decrease in the relative poverty rate of 0.35 percentage points in the former case. However, combining both demand- and supply-side effects, our results suggest that an ECCPE expansion targeting prime-working-age poor mothers

## PUBLIC INVESTMENT IN SOCIAL CARE SERVICES

of small children has the potential to decrease the relative poverty rate by as much as 1.14 percentage points.

As far as the short-run fiscal sustainability of public expenditures is concerned, we find that an ECCPE expansion is likely to recover 77% of expenditures through increased government revenues, while for construction the same ratio stands at 52%.

Our findings suggest that in addition to the supply-side effects, there is a strong demand-side economic rationale for public investments in early childhood care and preschool education services in terms of decent employment creation, gender equality, and poverty alleviation, as well as fiscal sustainability. The same argument can be expanded to cover other subsectors of social care, namely the expansion of care services for the elderly, the disabled, and the sick. Hence, this report suggests that a fiscal prioritization of public investments and expenditures in building a social care service infrastructure represents not only a good macro example of gender budgeting but also an effective macroeconomic policy for promoting inclusive and sustainable growth.

## ► I. INTRODUCTION

Low labor force participation accompanied by a high unemployment rate has become an important structural challenge facing the Turkish economy since the 2000s.<sup>1</sup> Underlying this low labor force participation is the fact that Turkey has one of the lowest female labor force participation rates in the world. The solution to this structural challenge is to be found in inclusive growth policies with high job creation potential that support women's integration into the labor market. This report points to the potential role of public investment in social care services (nurseries, day-care centers, and kindergartens, as well as professional care services for the elderly, the disabled, and the sick) as an inclusive growth policy, which could provide an effective solution to this structural problem. The link between the availability of high-quality, affordable social care services and the alleviation of the constraints on female labor supply has been acknowledged in numerous research studies and policy evaluations. Early childhood care and preschool education, a subsector of social care, have also been approached from the perspective of child development. In addition to the positive (female) labor supply and child development effects, an expansion of the social care service sector also carries the potential for substantial job creation, particularly for female workers, thus supporting women's labor market integration on the demand side as much as on the supply side.

This report aims to explore these potential demand-side effects of an expansion of social care services (SCS) following earlier studies on South Africa and the United States by the Levy Economics Institute. These earlier studies used input-output analysis and microsimulations of household labor force and income survey data to explore the employment-generation, income-enhancement, and poverty-alleviation effects of an SCS expansion versus another reference sector (mostly physical infrastructure) from a gender equality perspective. Antonopoulos et al. (2010) find that a hypothetical 50-billion-dollar investment in the US in home-based health care for the elderly and the chronically ill, and early childhood development services is likely to generate approximately 1.2 million

jobs (over 90% going to women), versus 555,000 jobs created by an equivalent investment in physical infrastructure (88% going to men). The simulation also shows that almost half of the social care jobs would go to poor households below the fourth decile of the income distribution, while half of the jobs created in physical infrastructure would go to middle-income households. For South Africa, Antonopoulos and Kim (2008) find that a 13.3 billion rand (in 2007 prices, equivalent to 3.5% of public expenditures and 1.1% of GDP) investment in home-based health care and early childhood care services generates 772,000 new jobs, with 60% going to women; furthermore, the national growth rate increases by 1.8%, and growth is pro-poor in that income of ultrapoor households increases by 9.2%, poor households by 5.6%, and nonpoor households by 1.3%.<sup>2</sup>

So far, the policy research and discussions on improving access to SCS in Turkey has revolved around the potential impact on boosting female labor supply or supporting child development. This report aims to extend the discussion for the case of Turkey beyond female labor supply and child development effects, and explore the potential impact on employment generation, gender equality through jobs allocation, and poverty alleviation, following the framework set by the above-mentioned studies by the Levy Economics Institute. Hence, we hope to enrich the current policy debate on the economic and social rationale for additional resource allocation to SCS sector expansion.

The focus of this study is on early childhood care and preschool education (ECCPE) services, a critical subsector of SCS. We use macro level input-output data as well as micro-level data from the Household Labor Force and Household Income and Living Conditions Surveys to simulate the possible effects of public investment in ECCPE on job creation and their distribution by gender, skills, and job characteristics, as well as income generation for poor versus nonpoor households. We compare the results for the ECCPE

1 As of 2014, the labor force participation rate is 50.5% (71.3% for men versus 30.3% for women), the unemployment rate is 9.9%, and the nonagricultural unemployment rate is 12.0% (Turkstat 2015a).

2 Antonopoulos et al. (2014) explore similar effects under a proposed job guarantee (JG) program for Greece in which a substantial share of job creation is directed at social service provisioning. The study finds a high multiplier impact such that for every 100 euros spent on the JG, roughly 230 euros would be added to the Greek economy; and for every 320 jobs directly created (JG positions), another 100 full-time jobs (mainly skilled) would be created in the private sector.

expansion to two alternative scenarios where a similar amount of public resources are allocated elsewhere: The construction sector (for example, physical infrastructure and public housing), which has been one of the main drivers of Turkish economic growth in recent years; and conditional cash transfers to low-income households, which has been an item of increased fiscal expenditures in the past decade.

The report is structured as follows: The next section presents a review of the literature on social care expansion and the associated economic outcomes, with a focus on current macroeconomic and fiscal policy debates. The third and fourth sections provide background on the Turkish case: section III assesses the gendered employment patterns in Turkey and the link to the lack of social care provisioning, while section IV assesses the current status of ECCPE in Turkey and recent policy developments. The fifth section outlines the data and methods used in the simulation of the job creation and income effects. Section VI presents our comparative findings on the employment-generation, income-distribution, and poverty-alleviation effects of an ECCPE expansion versus a construction boom (and versus cash transfers), while section VII compares the short-run fiscal sustainability of these two policies. We conclude in section VIII with an evaluation of the policy implications.

## ► II. THE CARE ECONOMY, GENDER EQUALITY AND MACROECONOMIC POLICY: CONTEXTUALIZING THE CURRENT STUDY

Social care service provisioning has been a primary focus of gender and economics research for a long time. This extensive literature points to the gendered division of labor and women's disproportionate burden of unpaid labor as caregivers as a systemic source of gender inequalities in the market economy, including the gender employment gap; gender wage gap; horizontal and vertical gender segregation; women's lack of representation in politics and other social spheres; and, more recently, gender gaps in time use. The issue has been conceptualized in various forms, such as productive versus reproductive spheres, paid versus unpaid work, the care economy, and caring labor.<sup>3</sup> A number of recent studies have pointed out to the emergence of a "crisis of care," in which individuals and societies are becoming increasingly "less willing and able to fulfill caring norms," as an inevitable outcome of the increasing competitive pressures of the market (Himmelweit 2007; Beneria 2008). A "purple economy" has been put forth as a response to the crisis of care (akin to the green economy as a response to the environmental crisis).<sup>4</sup> Among the four pillars of a "purple economy" are a social care infrastructure and universal access to care services, and a macroeconomic policy framework where job creation is a direct and high-priority objective; resource allocation to the provisioning of care, education, and health services is seen as a social investment and as a path to inclusive growth (İlkkaracan 2013). Accordingly, this study constitutes an applied research in the framework of a purple economy.

The policy debates, on the other hand, have been shaped in the context of work-life balance policies aimed at the redistribution of the care burden from households to the public sphere through socialized services, and also from women to men through legislation on care leave and labor market regulation. Such a redistribution takes place through legal and institutional mechanisms that help to reconcile the domestic workload of caring for the home and household members (dependent household members such as children and the elderly, disabled, or sick, as well as healthy adult family members) with the workload in the labor market. Such legal mechanisms include pregnancy and maternity leaves, paternity and parental leaves, other statutory care leaves associated with familial responsibilities, and other legal rights such as the flexible use of these leaves through the reduction of work hours during certain periods of the life cycle, as well as legal sanctions such as scheduling and supervising labor market working hours according to decent-work criteria. Institutional support mechanisms, on the other hand, primarily entail providing social care services for ECCPE and the elderly, disabled, or sick.

Intergovernmental bodies such as the European Union (EU), Organisation for Economic Co-Operation and Development (OECD), and United Nations (UN) have increasingly integrated the issue of work-life balance into their policy agendas. Policies intended to reconcile work with private and family life have been adopted as one of the six pillars of the EU's Gender Equality Strategy (EC 2006). The OECD has undertaken a major initiative since 2002 to compile a database and research report series titled "Babies and Bosses: Reconciling Work and Family," and justifies this undertaking on the basis of the importance of the issue for gender equality, labor market efficiency, and inclusive growth (OECD 2002; 2003). A joint report by the United Nations Development Programme (UNDP) and International Labour Organization (ILO) identifies work-life balance as one of the most important and challenging policy issues of our times (ILO-UNDP 2009). Moreover, UNDP Sustainable

3 The early discussions originate from Marxist-feminist debates in which reproduction was addressed as distinct but interlinked to production; see, for instance, Hartmann (1981), Humphries (1977), and Himmelweit and Mohun (1977). Gender in development literature has used paid versus unpaid work as the primary conceptual framework (e.g., see Antonopoulos and Hirway 2010). In the 1990s, feminist economics literature saw the rise of the concepts of "the care economy" and "caring labor"; see, for example, the seminal work of Folbre (1994, 2001); Himmelweit (2007); and also Razavi (2012). For a more recent compilation of an annotated bibliography on empirical studies, see IDRC (2014), Schildberg (2014), and Praetorius (2015).

4 'Purple', as in the symbolic color of the women's movement in Turkey and elsewhere.

Development Goal (SDG) 5—“Achieve gender equality and empower all women and girls”—includes among its targets “the recognition and valuation of unpaid care and domestic work through the provision of public services, infrastructure and social protection policies, and the promotion of shared responsibility within the household and the family” (target 5.4). (<http://sustainabledevelopment.un.org/focussdgs.html>).

While the pressing need for an improved work-life balance environment and the expansion of social care provisioning as an important instrument toward this end have been well acknowledged in the intergovernmental policy agenda, there has been limited concerted action by national governments. This is the case even in the EU where social provisioning programs are among the most advanced in the world. A recent report by the European Commission (EC 2014) concludes that little progress was made by member-states in the provision of child-care services to meet the Barcelona targets,<sup>5</sup> and that the lack of child-care facilities continues to act as a major barrier to employment. In 2011, only 10 member-states met or exceeded the target of a 33% coverage rate for children under 3, and only nine met the target of a 90% coverage rate for children between the age of 3 and the mandatory school age.<sup>6</sup> The report points out that the high cost of care facilities acts as a disincentive to take up jobs or increase working hours given that second earners have large labor supply elasticity and that the situation is even worse for lower income families.

The lack of progress on policies aimed at redistributing the costs of the care burden from women’s unpaid labor to the state and to men can be attributed in part to the unfavorable orthodox macroeconomic policy environment. The expansion of social care service provisioning depends on fiscal expenditures and public investments, while orthodox macroeconomic policies emphasize austerity, expenditure restraint, and privatization. Policies

complementary to social care provisioning—such as legislation supporting care leave, shorter work hours, or flexible work arrangements for improved work-life balance—contradict the strong neoliberal drive for market deregulation. Given that a universal social care infrastructure calls for a fiscal prioritization, if not necessarily a fiscal expansion, it becomes important to explore the economic rationales for the expansion of the social care service sector beyond gender equality. Indeed, a rising number of recent empirical studies evaluate the economic rationales for the expansion of social care services, particularly with a focus on early child care and preschool education. Next, we turn to an overview of these studies, and contextualize the present study within the scope of existing research.

### RECENT RESEARCH EXPLORING AN ECONOMIC RATIONALE FOR SOCIAL CARE EXPANSION

There are a variety of approaches to assess the economic outcomes of social care expansion, reflecting the multiple economic and social outcomes associated with this sector. Examining the alleviation of the constraints on female labor supply and boosting female labor force participation are probably the most common approaches to the problem. For example, in a comparative study, Del Boca and Sauer (2006) use a dynamic utility maximization model of labor force participation to estimate the participation decisions of married women in France, Italy, and Spain. They find that if less-educated women in Italy and Spain were to face the same institutional environment as is found in France in terms of work-life balance, including child-care provisioning for children under age 3, their labor force participation would increase by 17.5 and 29.4 percentage points, respectively.<sup>7</sup>

Apps and Rees (2004) construct a labor supply model to show that access to affordable child care, rather than conditional cash transfers for child benefits, enhances female labor force participation (and fertility) in a significant manner. The study’s starting point is the transformation of a historically inverse relationship between female labor supply and fertility into a positive one. The authors point

5 At the Barcelona Summit in 2002, the European Council set the targets of providing child care by 2010 to at least 90% of children between 3 years old and the mandatory school age, and at least 33% of children under 3 years of age.

6 The report shows that in many member-states, the share of children enrolled in formal care is very low, which is attributed to possible shortfalls in the provision of formal child-care services or the cost of such services. In the Czech Republic, Poland, Slovakia, Bulgaria, Romania, Greece, Hungary, and Austria fewer than 10% of children under 3 years of age are enrolled in formal care, and full-time child-care facilities are not broadly available in a number of member-states, including the United Kingdom, the Netherlands, and Romania.

7 Del Boca and Pasqua (2005) use the European Community Household Panel data to compare various policy environments and show that child-care availability significantly increases the probability of women’s participation as well as their probability of having children. The study points out that child-care costs have significant effects on the participation of mothers in the US, the UK, and Canada; by contrast, in the Northern European countries, where public child care is readily available, the cost of child care is less important for the mother’s decision to work. See also Del Boca and Vuri (2007) for a survey on the impact of child-care costs across different countries.



out that countries with the lowest fertility rates, like Germany, Italy, and Spain, also have the lowest female participation rates. This paper analyzes the extent to which this can be explained by public policy, in particular taxation and the system of child support. The results suggest that countries that have individual rather than joint taxation, and that support families with child-care facilities rather than with conditional cash-transfer payments to parents, are likely to have both higher female labor supply and higher fertility rates.

In an empirical application, Apps and Rees (2005) analyze time-use data for Australia, the UK, and Germany to show that couples—particularly women—in the absence of public provisioning of care services, revert to abrupt and costly reallocation of time from the labor market to unpaid child care and domestic work, resulting in declining female labor force participation. The study argues that markets fail to provide affordable and high-quality child care. They point to two sources of market failure: first, the nature of child care as a local public good and the nonconvexity arising from economies of scale in its provisioning; second, a tax distortion arising from a large gap between the marginal value product and the marginal social cost of child care.<sup>8</sup> They suggest that both reasons make a strong case for public intervention in the supply of child care.

Another supply-side approach to assessing the economic outcomes of expanding child-care and preschool services entails the identification of the long-run effects through the human capital-enhancement role of early childhood support. This approach emphasizes the critical role that early childhood care and education services play in the physical, social, and mental development of children, preparing them to succeed in school and adult life. Hence, investment in early childhood care services has potential long-run growth-enhancing effects through improved quality of human capital that can be identified through the internal rates of return. A series of papers by Heckman and others<sup>9</sup> find that preschool education yields the highest returns (i.e., formalized in terms of higher future earnings) as

compared to investments in later stages of schooling. “From a purely economic standpoint, the highest return to a unit dollar invested is at the beginning of the lifecycle since it builds the base that makes later returns possible” (Conti and Heckman 2012). These studies also emphasize that higher potential earnings are linked to higher intergenerational educational and income mobility.<sup>10</sup> Hence, the positive effects of public provisioning of preschool education are particularly large for children from disadvantaged households because of the additional equality-enhancing outcomes of these services, which are further discussed later in this section.

A number of recent empirical studies have approached the issue within a macroeconomic framework and with some emphasis on the labor-demand side. Hansen and Andersen (2014) explore the effects of public investment in child-care services on growth and employment creation using a macroeconomic model. The study, based on a macrosimulation of the eurozone countries and the UK, finds that “a gendered investment plan” designed to expand public child-care services would lead to 2.4% GDP growth and create 4.8 million new jobs in five years, and that more than half of these jobs (2.7 million) would be held by women.<sup>11</sup> A recent study on Austria (AK Europa 2013) approaches the issue from a similar demand-side perspective and shows that investment in the provision of child care could not only eliminate current deficits in terms of available places and quality but also generate considerable employment and budgetary effects. With an initial financing of, on average, 200 million euros per year by the central and local governments over five years, targeting creation of 35,000 new places for

<sup>8</sup> Apps and Rees (2005) explain this gap as follows: market child care is bought out of taxed income, and labor, which is the main factor of production in child care, is heavily taxed—hence the gap between the marginal value product and marginal social cost of child care (p. 33).

<sup>9</sup> See, for example, Heckman, Pinto, and Savellyev (2013); Heckman et al. (2010); and Conti and Heckman (2012). See also Masse and Barnett (2002) for the US.

<sup>10</sup> For a comprehensive summary on the findings of the various studies on the benefits of early childhood education, see also Heckman’s Address at the White House Summit on Early Education (<http://heckmanequation.org/content/white-house-summit-early-education>).

<sup>11</sup> The study uses the international macroeconomic model HEIMDAL and is based on two pillars: investments in child care that are aimed at increasing women’s labor supply, and a more traditional investment plan with a special focus on female employment that is aimed at increasing the demand for female labor. In the model calculations it is assumed that the framework conditions for women to participate in the labor market are improved through investing in expanding and improving child-care facilities in Europe, with a special focus on Southern European countries as the potential for increasing the female participation rate is largest here. It is assumed that the improvement in child care will gradually increase public employment by 0.5% by 2018 (0.75% for the southern eurozone countries), and that the improved framework will gradually increase the labor force during the next five years, resulting in a 1% increase in 2018. At the same time, the countries are increasing government investments, starting with 1% of GDP in 2014 and gradually increasing to 1.5% by 2018. Southern eurozone countries are investing 1.5% GDP in 2014 and gradually increasing to 2.5% GDP by 2018. Taxes are assumed to increase in a balanced way, so that the total effect on the public budget equals zero.

small children (under 3 years old) and better operating hours for 70,000 existing kindergarten places, the study estimates that 14,000 new jobs in child care would be created, as well as another 2,300 in other sectors due to enhanced demand. Furthermore, it is estimated that 14,000 to 28,000 parents who could not participate in the labor market due to their care responsibilities could find employment. The study also shows that taxes from the new employment opportunities and the savings in unemployment benefits would create public revenue that would exceed the costs of the initiative beginning in the fifth year of the initial investment and continuing thereafter.<sup>12</sup> The authors argue that the perception of social policy as investment that pays off might change the debate on austerity measures and put more emphasis on the productive role of social policy.

Warner and Liu (2006) also approach the issue from a demand-side perspective but use an input-output approach to compare the intersectoral linkages in a regional economy in the US that would be triggered by child-care sector multipliers. They find that only hospitals have larger employment and output multipliers than child-care centers. They attribute the short-term output and employment-enhancing effects of child-care expansion in the regional economy to its relatively large output and employment multipliers and to its higher backward linkages. The authors conclude that child care compares favorably as an economic development goal.

The studies on South Africa and the US by Antonopoulos and Kim (2008) and Antonopoulos et al. (2010), discussed in the introduction section above, establish the main framework for our study on Turkey. These studies follow a two-tiered approach where the authors first assess the macroeconomic effects of social care expansion at an aggregate level, namely the impact on labor demand, employment generation, and growth. Beyond the aggregate effects, however, these studies also examine the distributional impacts of social care expansion in terms of gender, education/skills, and household income. The South Africa study uses a social accounting matrix method, and the US study uses a microsimulation method (which this study also adopts). In addition to child care, these studies also include care of the elderly and the sick in the social care expansion scenario and compare

the economic outcomes to alternative expenditure on projects such as physical infrastructure or green energy. Their findings show that an identical amount of fiscal expenditure on social care expansion not only generates a substantially larger number of jobs than the alternatives, but that the distribution of jobs and income is significantly more favorable for women, the lower skilled, and poor households as well. As such, these two studies approach the equality-enhancing effects of social care expansion from the demand side, while the above-discussed studies, which explore the impacts on labor force participation or on human capital, identify the supply-side effects.

These studies, which evaluate an economic rationale for public provisioning of social care services from the demand side and focus on employment generation effects, also overlap with alternative post-Keynesian approaches to macroeconomic policy. In the context of debates on wage-led versus profit-led growth, the post-Keynesian alternative solution to the global economic crisis has been to promote public investment in physical as well as social infrastructure in order to generate jobs, increase incomes, and promote a wage-led recovery from the crisis (Onaran and Galanis 2012). This study points to public investments in social care infrastructure as an area of intervention for job creation, and gender-egalitarian wage-led growth.<sup>13</sup>

The findings of these various research studies have also been reflected in recent policy documents. As discussed above, for the case of intergovernmental platforms such as the EU, OECD, and UN, an important objective of social care provisioning policies has been the improvement of female labor force participation rates. Beyond gender equality, however, the socioeconomic equality-enhancing effects of child-care provisioning has also emerged as one of the primary motivations for policy design. A recent recommendation by the EC (2013) titled “Investing in Children: Breaking the Cycle of Disadvantage” points out two supply-side channels through which the equality-enhancing effects of access to ECCPE services prevail. One is along the lines of Heckman’s human capital-enhancement effect. Public provisioning of preschool education supports equal opportunities for children from disadvantaged households, enhancing school success and adult earnings. The EC recommendation also points to the improved

<sup>12</sup> The study estimates that, depending on economic development, the excess would be at least 14 million euros and could go as high as 168 million euros.

<sup>13</sup> This alternative growth vision has been termed “purple jobs and purple growth,” paralleling the vision of “green jobs and green growth” (see Ilkkaracan 2013).

viability of dual-earner households under universal access to early childhood care, particularly for less-educated couples, and hence the poverty-alleviation and additional equality-improvement outcomes for children from disadvantaged households.

Similar policy initiatives from other parts of the world entail, for example, the reauthorization of the Head Start program in the US in 2007, an initiative to address the systemic causes of poverty by providing children from low-income families with early care support and education. In Mexico in the 2000s, public support to facilitate the access of low-income and disadvantaged families and children to ECCPE services was adopted as a key antipoverty strategy. In 2007, Mexico's Ministry of Social Development opened over 8,000 child-care centers for children between the ages of 1 and 4 with the stated aim of fighting poverty (Matarazzo and Lopez-Ortega 2010). In South Korea, one of the government's strategies to address the impact of the 2008 global economic crisis and the rising unemployment rate was public support for the extension of social care services focused largely on children and the elderly. In its evaluation of this policy, the South Korean Ministry of Labor underscores the multifaceted positive impact of this initiative:

*Creating social service jobs has boosted our economy's growth potential as it has helped the not economically active population, including housewives and the aged, to be brought into the economically active population. In particular, providing social services, such as child caring, housekeeping and patient caring, have liberated women from domestic work, which in turn, has increased employment. The project to create social service jobs has not only created jobs for vulnerable groups of workers, ... [but] has also played the role of providing social services which are in short supply, thereby largely contributing to supplying social services for low-income lower middle classes who want to get such services but have little purchasing power. The project has a great significance in that it has opened up new horizons by creating jobs in the social service sector, which is often called the third sector beyond the private and public sectors and need to expand its share of employment, through cooperation between NGOs and the government. (Peng 2010, quoting from Ministry of Labor policy document dated 2008).*

To summarize, the impact of policies to expand the social care services sector can be assessed in terms

of their potential to achieve multiple economic and social targets, such as:<sup>14</sup>

- i. Alleviation of constraints on female labor supply and boosting female labor force participation.
- ii. Long-run human capital enhancement through support to child development in physical, social and mental terms.
- iii. Employment generation and income enhancement with positive distributional effects favoring women and low-skilled workers.
- iv. Alleviation of poverty and reduction of socioeconomic inequalities between children and households through i, ii, and iii above.
- v. Improved quality of life for groups dependent on care services such as children, the elderly, disabled and the ill through better access to care.

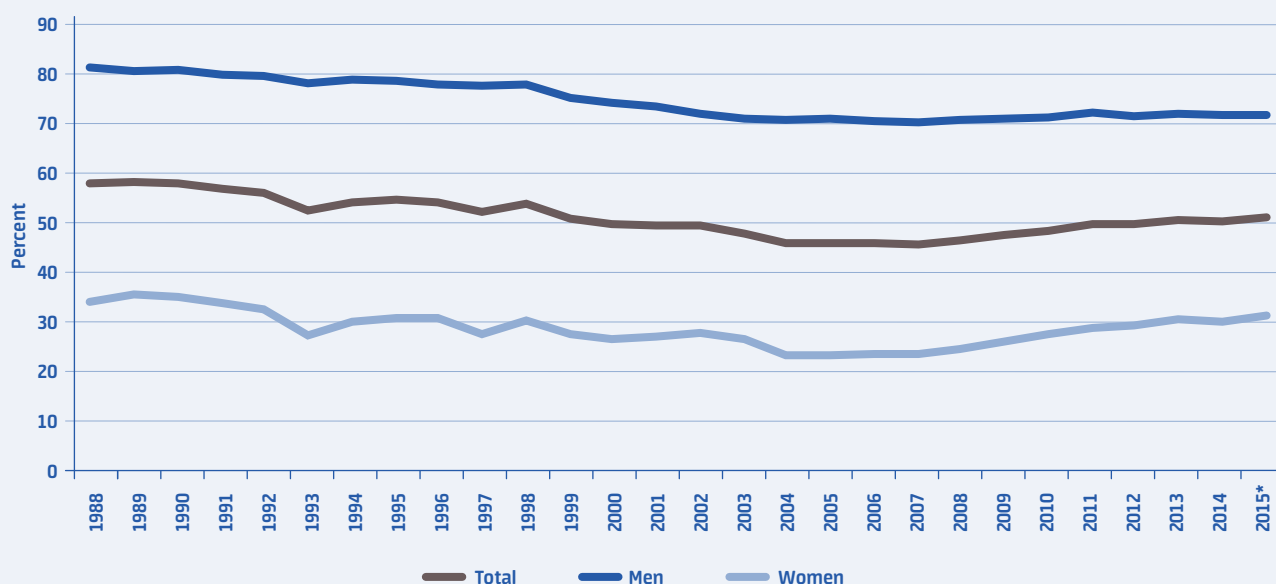
Any one of the above-listed effects of social care service expansion can be taken as a criterion for evaluating the economic and social rationale for public policies supportive of the SCS sector. So far, the debate on improving the accessibility of SCS in Turkey has revolved around the potential impact on boosting female labor supply (i above), as will be discussed in the next section. This report aims to extend the discussion beyond female labor supply effects, and to explore the potential demand-side impact on employment and income generation with equality-enhancing distributional outcomes (iii and iv above) following the framework set forth in the above-mentioned studies by the Levy Economics Institute on South Africa and the US. Hence, our aim is to enrich the current debate on the economic and social rationale for SCS sector policies.

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<sup>14</sup> We note that some of the economic outcomes listed here might have consequent positive growth or productivity effects.

### ► III. GENDERED EMPLOYMENT PATTERNS IN TURKEY AND THE LINK TO SOCIAL CARE PROVISIONING

FIGURE 1: LABOR FORCE PARTICIPATION RATES IN TURKEY BY GENDER, 1988–2015



Source: Turkstat, Labor Force Statistics.

\* Observation for 2015 belongs to April 2015.

#### LOW LABOR FORCE PARTICIPATION AND HIGH UNEMPLOYMENT: A DUAL CHALLENGE

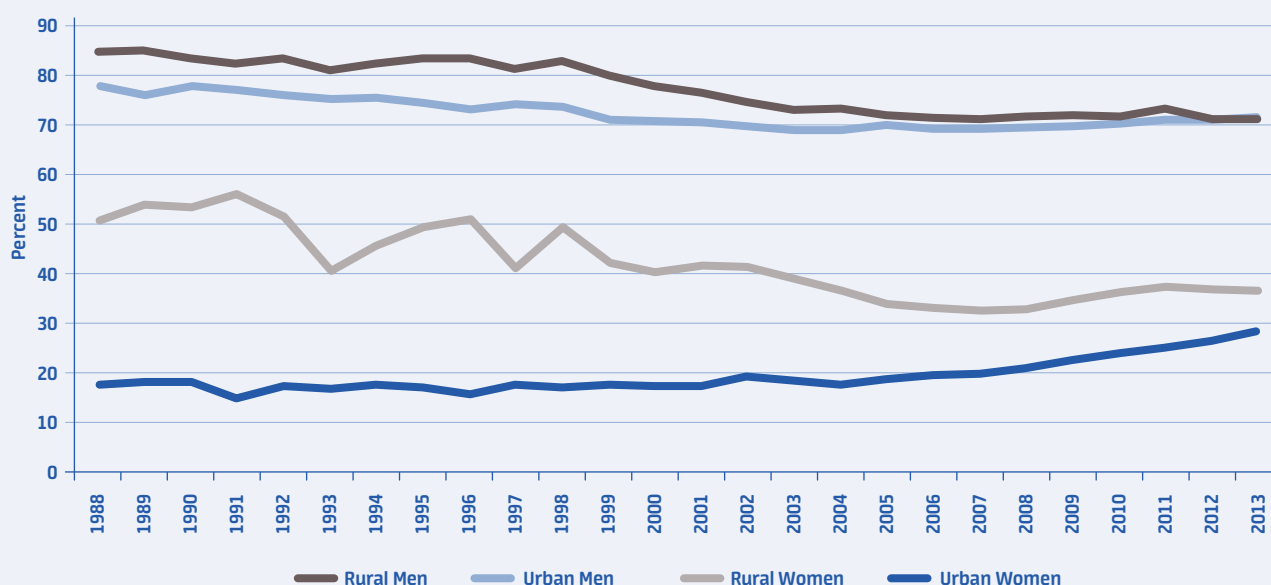
The Turkish economy has one of the lowest labor force participation rates globally at around 50%. Both male and female labor force participation rates were declining until the early 2000s (Figure 1), albeit at drastically different levels of participation and due to different dynamics. The declining trend in the male participation rate can be attributed to an increased number of years of schooling and higher rates of retirement, while the declining trend in the female participation rate was driven to a large extent by rural-to-urban migration patterns and the transformation of women from unpaid family farm workers to urban homemakers (İlkkaracan 2012a). This can be seen in the narrowing of the gap between rural versus urban women's participation rates over time (Figure 2). During the 2000s, the male participation rate seems to have stabilized at just above 70%. The female participation rate has registered an increase since the 2008 economic crisis, driven by the rise in urban

female participation rates. Since 2014, the female participation rate has hovered just above 30% (urban female participation rate at 28%), marking a striking gender participation gap of 40 percentage points.<sup>15</sup>

This is not only the lowest female participation rate among OECD nations (33.6% versus a 62.8% OECD average female labor force participation rate in 2014 for the 15–64 age group), but it also ranks Turkey among the bottom 15 countries globally (UN Statistics 2014; WEF 2014). Countries with relatively similar levels of economic development and industrialization such as Mexico and South Korea have female participation rates substantially higher than Turkey's, at 46.8% and 57.0%, respectively (OECD 2015). The national male labor force participation rate (76.6%

<sup>15</sup> This gender gap is for the 15+ population. It was even wider, at 43 percentage points, for the working-age population (15–64) in 2014 (see <http://www.tuik.gov.tr/PreHaberBultenleri.do?id=18640>). For the prime-working-age group (25–54), the gender employment gap was 48.2 percentage points (83.2% employment rate for men versus 34.8% for women). This is almost five times that of the EU-28 average gender employment gap of 11.4 percentage points in 2014 (83.2% employment rate for men versus 71.8% for women in EU-28) (ENECE 2015).

FIGURE 2: URBAN VERSUS RURAL LABOR FORCE PARTICIPATION RATE IN TURKEY BY GENDER, 1988–2013\*



Source: Turkstat, Labor Force Statistics.

\* Rural versus urban disaggregated official LFP rates from 2014 onward are not available from Turkstat due to an ongoing revision of rural and urban definitions.

for the 15–64 age group) is on par with the OECD average (79.7% in 2014). However, the very low female participation rate in Turkey pulls down the country’s average to 55.1% (versus the OECD average of 71.2%), which makes Turkey one of the countries utilizing its potential workforce in the least efficient fashion (OECD 2015).<sup>16</sup>

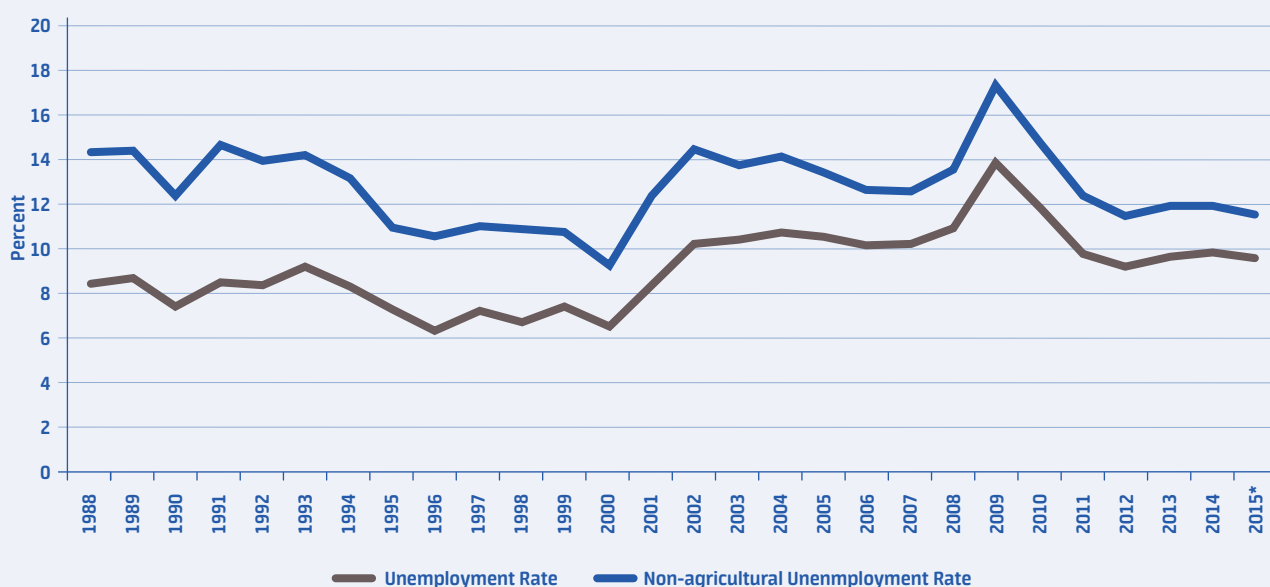
One of the main features of Turkey in terms of gender patterns in employment is the high share of women employed in agriculture as unpaid family workers. In 2014, 26.6% of all employed women (2 million out of a total of 7.7 million women employed) were working in this vulnerable employment status, on an unpaid basis in small-scale family farming. Engagement in unpaid agricultural work constitutes a smaller share of the employment status for men. Only 3.4% of male employment is in unpaid family work in agriculture (out of 18.2 million employed men, 621,000 are unpaid family farm workers). Men working in small-scale family farming are accounted for in statistics as self-employed workers, based on their farm ownership; 10.6% of male employment consists of self-employed men in agriculture (1.9 million men versus only

268,000 women in self-employment in agriculture). Summing up the self-employed and unpaid family workers in agriculture, 14% of total male employment and 30% of female employment is in small-scale family farming (Turkstat 2015a).

The unemployment rate is high: around 10% throughout the 2000s (Figure 3), corresponding to 2.85 million unemployed workers as of 2014. The female unemployment rate (11.9%) is substantially higher than the male unemployment rate (9.1%). This high level of unemployment persists despite two structural factors that exert a downward bias on unemployment; namely, a majority of adult women remain out of the labor market and a nonnegligible share of the population is engaged in family farming. The nonagricultural unemployment rate is 12.0% as of 2014. The periods of economic crisis (1994, 2001, and 2009) have seen much higher unemployment rates, peaking at 14% (with a 17.4% nonagricultural unemployment rate) in 2009.

16 We note that the EU’s employment rate target for 2020 is 75%. The necessity of raising the employment rate—especially the female employment rate—has been underscored by all EU progress reports on Turkey since 2005, when Turkey’s EU accession bid began.

FIGURE 3: UNEMPLOYMENT RATE IN TURKEY, 1988–2015



Source: Turkstat, Labor Force Statistics.

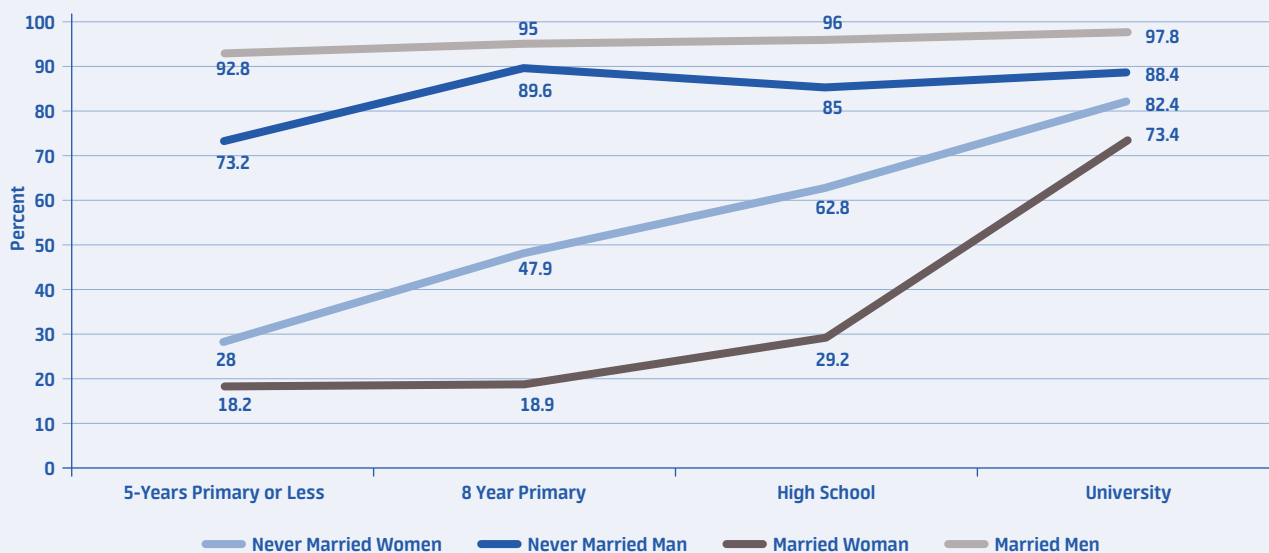
\* Observation for 2015 belongs to April 2015.

The true scope of the employment-generation challenge is even more extensive considering categories such as discouraged workers (i.e., people not seeking a job and hence not recorded in official statistics as unemployed, but who report that they are ready and willing to start working at a job if offered one), the underemployed (i.e., those who are employed but seeking additional work), and adult women who report lack of labor market engagement due to domestic tasks. Based on 2014 official statistics, there were 2.48 million discouraged workers, of which 1.5 million were women (Turkstat 2015a). Together with the unofficially unemployed (2.85 million), this makes 5.3 million people who are ready to start a job if offered one. The unemployment rate including discouraged workers is 17.1%. Of the 25.9 million total employed, 1.15 million report being underemployed. Finally, of the 20 million adult women who remain outside of the labor market, as many as 11.6 million report engagement in full-time homemaking as the reason (versus no men in this category). This latter category can be interpreted as a substantial potential labor force, which might be integrated into the labor market if jobs were available and domestic labor constraints on labor supply were eliminated. Overall, the Turkish economy can be said to be up against a substantial challenge of not being able to generate sufficient number of jobs vis-à-vis the 5.3 million

people who are ready to start working if offered a job; the 1.15 million who report seeking additional jobs due to underemployment; and the 11.6 million female homemakers, some of whom might be able to participate in the labor market under more favorable labor market and care-provisioning conditions.

### EMPLOYMENT BY GENDER, EDUCATION, AND MARITAL STATUS: THE LINKS TO WORK-LIFE BALANCE

The policy discourse on the low level of female employment in Turkey typically points to two factors: women's low education level and "culture" (commonly referred to as "the problem of mentality"). However, a number of recent evaluations indicate that underlying the influence of both factors on gendered employment patterns is a poor work-life balance. İlkkaracan (2010) points out that a rather striking picture is revealed when marital status, in addition to the factors of gender and education level, is included as a criterion for a comparative evaluation of the labor force participation patterns in Turkey. Figure 4 shows labor force participation rates for the urban prime-working-age (20–49) population disaggregated by gender, education level, and marital status. While male participation rates are around 90% regardless of level of education or marital status, for women we observe substantial gaps by education and marital status. Never-married women have relatively high labor force

**FIGURE 4: URBAN LABOR FORCE PARTICIPATION RATES BY GENDER, MARITAL STATUS AND EDUCATION, PRIME WORKING AGE (20-49), 2011**

Source: İlkkaracan 2014.

participation rates at every education level, followed by sharp drops with marriage (with the exception of university graduates). For instance, the labor force participation rate among urban female primary school graduates of prime working age who have never married is 48%, but this rate falls to 19% for their married counterparts. The labor force participation rate for never-married women with a high school education is 63% (at the OECD average) but declines to below 30% with marriage.

This shows that a lack of skills or “culture” does not prevent a majority (more than half) of female primary and high school graduates from joining the labor market prior to marriage. Nevertheless, marriage, pregnancy, and childbearing subsequently force most of them to exit the labor market. University graduates (approximately 10% of the adult female population) also display relatively lower participation rates among married women (73%) in comparison with single women (82%), but we note that the never-married/married participation gap for this better-educated group is substantially lower.

The impact of marital status on the labor force participation of women with less than a university education (making up almost 90% of the adult female population) points to weak labor market attachment, not barriers to entry, as the main problem for female employment. Underlying this problem is a poor

work-life balance environment. For women with less than a university education, the gains from labor market engagement (i.e., the wages they are likely to earn in the labor market) are substantially lower than the opportunity cost of employment (e.g., the cost of purchasing market substitutes for domestic and caring tasks associated with marriage and birth), especially considering the long working hours and lack of public provisioning of SCS. As such, the weak labor market attachment of women with less than tertiary education should be interpreted more within the framework of a rational cost-benefit analysis given a poor work-life balance than as a problem of insufficient skills or the prevailing culture. If Turkey could preserve the labor force participation rate observed among never-married women with primary or high school education for their married counterparts as well, then the female labor force participation rate would indeed attain the OECD average.

A research study comparing Turkey with six OECD countries in terms of work-life balance policies and their interactions with gender inequality in the labor market shows that the Turkish context provides a much less supportive environment in all respects (İlkkaracan 2010; 2012b). Regarding care-leave laws, the current legislation attempts to resolve the entire problem of care with a four-month maternity leave.

The current paternity leave policy is a largely symbolic 10 days for public sector employees and three days for private sector employees. The care-leave provisions for family members other than children are limited to an unpaid leave exclusively for civil servants, while private sector employees, who constitute the overwhelming majority of the workforce, have no such right. Moreover, the prevalence of informal employment, especially among low-skill workers, further limits the exercise of the existing rights to legal care leave. As defined by national legislation, the workweek is limited to 48 hours; in practice, however, more than a third (35%) of employees work for 50 hours or longer (İlkkaracan 2010). Social care services, including the ECCPE services that are the main focus of this study, are very limited, as will be shown in the following section, and remain largely the exclusive privilege of a minority with high purchasing power. When the shortcomings of the legal and institutional mechanisms are added, the resulting picture of work-life balance in Turkey is rather dismal.

### POLICY RESEARCH AND DEBATES ON WOMEN'S EMPLOYMENT AND SOCIALIZATION OF CARE IN TURKEY

The connection between the underdevelopment of the SCS sector and the low female employment rate in Turkey has recently made its way onto the public policy agenda, owing to a number of research studies and advocacy work by women's organizations. At the forefront of this effort was a research-based advocacy and lobbying initiative by Women for Women's Human Rights (WWHR), in collaboration with Istanbul Technical University Women's Studies Center in 2008–2010 and supported by the Platform for Women's Labor and Employment (the KEIG Platform). This research culminated in the above-referenced first-ever publication in Turkish on work-life balance policies and the implications for gender equality in the labor market (İlkkaracan 2010).<sup>17</sup> A primary policy recommendation of this OECD-comparative research initiative was the urgent need to expand ECCPE services. Beyond child care, the report also proposed a series of complementary policy recommendations, namely paternity-leave and other care-leave legislation with special provisions to encourage men to undertake care work; providing SCS for the elderly, the disabled, and the sick;

shortening labor market work hours; regulation of labor markets to eliminate informal employment practices; promotion of equal pay for equal work and family-friendly workplace practices; and, finally, macroeconomic policies that target decent job creation as a primary and direct objective.

These policy proposals were taken up in a press statement by the KEIG Platform, a national advocacy group of women's economic rights (KEIG 2011), and later in a report on policy proposals for improvement of women's employment (KEIG 2013). Simultaneously and in cross-fertilization with the above research and advocacy initiatives by women's NGOs, a World Bank report on women's employment in Turkey proposed the expansion of child-care facilities as one of its three primary policy suggestions (World Bank – Turkey 2009).

These research and advocacy initiatives on the expansion of child care to support the objective of gender equality coincided with simultaneous initiatives to expand ECCPE services to support the objective of children's rights and improve equality of opportunity at an early age. The Mother-Child Education Association (AÇEV) launched a campaign in the mid-2000s promoting preschool education, titled "7 Is Too Late," where "7" referred to the mandatory school starting age.<sup>18</sup> The concrete target of the campaign was to lobby for increasing enrollment in preprimary (nursery) classes (age 5 or 6) as a means of enhancing children's subsequent school performance. Hence, the focus was on the human capital outcomes of preschool education and equality of opportunity for disadvantaged children, but the campaign did not make any reference to gender-equality implications. From the gender-equality perspective, 5–6 as a starting age in ECCPE would also be deemed too late, with only a limited impact on improving women's labor market attachment.

At the same time, intergovernmental agencies such as UNICEF and the World Bank – Turkey offices published reports on the benefits of expanding early child development programs. The UNICEF study focused on alternative community-based models that could be supported by local governments, NGOs, and employers (Yılmaz and Tuğrul 2012). These community-based models included local initiatives such as mobile buses, playrooms, mother-child health

<sup>17</sup> See also İlkkaracan (2012b) for a concise, updated summary of these research findings in English.

<sup>18</sup> See Kaytaz (2005) for an early study commissioned by AÇEV on a cost-benefit analysis of preschool education.



and sports centers, and family libraries. The report emphasized that these models have the advantage of being low cost. Nevertheless, they do not represent a systematic and coherent early childhood development intervention compared to access to high-quality day-care centers and preschool education. Moreover, the report carried a strong implicit gender bias in that it attributed all responsibility for participating in these initiatives to mothers. Hence, such an institutional framework for early childhood development programs is also unlikely to alleviate women's unpaid care burden.

A similar community-based early child-care initiative in Turkey has been spearheaded by the Foundation for Valuation of Women's Labor (KEDEV) since the 1990s. KEDEV ([www.kedv.org.tr](http://www.kedv.org.tr)) promotes a model of community child-care centers organized by local women, and reports that it has started 23 Woman and Child Centers in İstanbul and the Marmara Earthquake regions as well as in Eastern and Southeastern Turkey. These centers target children and mothers from low-income, poor households. The NGO states that this local women-led and women-run model provides "public services" that are enabled by "the initiative and altruism of mothers/women."<sup>19</sup> Like the UNICEF report, KEDEV also emphasizes that the main advantage of such a community-based model is its low cost. Hence, it claims that the model is sustainable and replicable since it makes minimum use of public funds.

While such local women-run centers have the potential to alleviate the time burdens on women to some extent by pooling local labor and also supporting child development, they carry a number of potential risks that need careful consideration. Depending on local initiatives for the expansion of ECCPE, services in poor neighborhoods can themselves turn into a mechanism for replicating inequalities among children. While higher-income households with children are able to afford high-quality, professional, private child-care centers and preschools or would benefit from local initiatives run by highly educated parents with access to more extensive local resources, children from low-income, poor households would be obliged to use centers with limited material and human resources, run by local women with lower levels of education and only

limited training in professional skills. Second, as KEDEV acknowledges, these services should actually be public services. Public services should be provided with public resources, and should not exploit the "altruistic," unpaid labor of poor women. Hence, such local, women-based models of child care also suffer from a gender bias, and stop short of facilitating a redistribution of the unpaid care work burden from lower-income women to the public and to men.

The World Bank study, on the other hand, evaluated the potential impact of early childhood support programs and preschool education in Turkey in terms of improving the equality of opportunity for children from disadvantaged households. The report acknowledged the link between the expansion of ECCPE and improved levels of female employment. The study estimated that the expansion of child-care facilities would increase women's employment by three percentage points (from 26% to 29% as of 2006), and could simultaneously reduce poverty by 2.8 percentage points from 18.3% to 15.5% (World Bank 2010).

A related and more recent study on Turkey finds that for married-couple households, the relative risk of poverty in dual-earner households is only half (50%) of the poverty risk faced by male-breadwinner households, after controlling for a series of factors affecting the risk of poverty that includes education and age of the couple, household size, urban versus rural location, and region (Değirmenci and İlkkaracan 2013). The study concludes that public support for social care service expansion has the potential to serve as an antipoverty strategy that works by encouraging dual-earner households.

Finally, a complementary research project supported by UNDP Turkey shows that the relation between employment and poverty becomes much more complex when the measurement of poverty is expanded to include "time poverty" and "income poverty" (Zacharias, Masterson, and Memiş 2014). The policy simulation used in this study suggests that under a scenario where all potentially employable people in income-poor households (most of them female homemakers) are offered a job in line with their skills and receive the observed market wages, "income poverty" declines but "time poverty" emerges. In other words, an income deficit (i.e., income poverty) is transformed into a care deficit (i.e., time poverty). As a result, the study underscores the need for an efficient policy mix to fight poverty

<sup>19</sup> See [www.kedv.org.tr/programlar/erken-cocukluk-egitimi/erken-cocuk-bakim-ve-egitimi/](http://www.kedv.org.tr/programlar/erken-cocukluk-egitimi/erken-cocuk-bakim-ve-egitimi/).

that will not only provide employment to low-income households but also offer them high-quality and accessible SCS.

### RECENT POLICY DEVELOPMENTS

These advocacy initiatives have culminated in the creation of a policy proposal by the Ministry for Family and Social Policy (MFSP) for child-care subsidies to employed mothers. In order to support the formulation of the policy proposal, the Women's Entrepreneurs Association (KAGİDER), also a member of the KEİG Platform, in collaboration with AÇEV, commissioned a supporting study on child-care subsidies. The study showed that a 300 TRY child-care subsidy (in 2012 prices) to employed mothers would be fiscally sustainable in the short run as it would finance itself through returns on increased employment, income, and consumption taxes. The draft policy by the MFSP, also supported by the Ministry of Labor and Social Security (MoL), was rumored to have been rejected during internal cabinet negotiations, primarily on the grounds that it would create a burden on the public budget.<sup>20</sup>

By 2013, the MFSP had moved on to an alternative policy proposal. The new proposal included the simultaneous objectives of increasing women's employment and fertility rates through an improved work-life balance environment. The new proposal presented a step forward in that it marked the first policy document in Turkey that made an explicit reference to the problem of "work-life balance." Yet the proposed measures relied on expanded care leave and flexible work practices more than SCS provisioning. The proposal relegated the responsibility for providing child-care services to employers (e.g., through volunteer initiatives such as the setting-up of child-care centers in so-called organized industrial regions) and local governments, but without any mandate to do so. Given the weakness of its content on care-service provisioning, the proposal suggested establishing a better work-life-balance environment through extended maternity- and parental-leave policies, and flexible work legislation enabling part-time and home-based work for parents (particularly for mothers) of young children. Despite a number of objections by

women's groups as well as employer associations,<sup>21</sup> the proposal was formulated into a full-fledged proposal by 2014 titled the Law on the Protection of the Family and the Dynamic Population Structure.

The draft Law on Protection of the Family and the Dynamic Structure of the Population was approved by the Council of Ministers on January 19, 2015, and brought to the Turkish parliament on January 26, 2015. The draft law states that it seeks to improve fertility rates in tandem with women's employment. This is to be achieved through: (1) the extension of maternity leave in the form of a part-time leave based on part-time work for up to two additional months for the first child and up to four and six additional months for the second and third child, respectively, with full pay coverage for public employees and partial pay coverage for private sector employees; (2) the right to unpaid part-time parental leave (combined with the right to part-time work) up to the child's mandatory school age (5.5 years old); (3) a five-year tax abatement for newly established child-care centers; (4) an obligation for local governments to set up child-care centers; and (5) the right for employers to hire workers on fixed-term contracts via private agencies to replace parents on part-time parental leave.

The draft law has been criticized by women's rights organizations, labor unions, and employer associations, due to a number of shortcomings. Women's rights organizations point out that the part-time parental leave / part-time work option is likely to be taken up exclusively by mothers rather than fathers, since it does not have a nontransferable component (i.e., there is no segment of the parental leave that is reserved only for fathers' use) and is unpaid. Hence, these groups have expressed concerns regarding potential dangers of the law, which, if adopted, could increase horizontal and vertical gender segregation and the gender pay gap under the pretext of extended part-time parental leave. They also point out that a soft mandate for local governments to provide child-care centers is highly likely to be ineffective, similar to the failure of an existing law under which local governments are also mandated to set up women's shelters. Hence, if the law is to have any impact on child-care provisioning it will be through private centers, and will therefore have

<sup>20</sup> A study commissioned by World Bank Turkey in way of technical assistance to the MFSP showed that a demand-side child-care subsidy at 50% of the net minimum wage was too low to have any substantial impact on women's employment (see Aran, Immervoll, and Ridao-Cano 2014).

<sup>21</sup> For a critical summary of the debates, see "Work-Family Balance a-la-Turca" on Feminist Economics Posts by IAFFE blog (<http://feministeconomicsposts.iaffe.org/2013/11/22/work-family-balance-policy-alla-turca/>); Ilkkaracan 2013.

limited benefits for low-income households.<sup>22</sup> Labor unions were critical of the draft law for opening up the possibility of part-time employment on fixed-term contracts, thus facilitating vulnerable forms of employment under the pretext of work-life balance. Finally, employer associations expressed concerns that such an extension of parental leave is likely to further deepen discrimination against women in hiring and promotions.

Although the draft law has passed through various parliamentary commissions, it was never brought up for parliamentary approval, except for two articles that were adopted as part of an omnibus bill in 2015 (*Official Gazette* 2015a). These two adopted articles were geared toward the objective of increasing fertility rates rather than work-life balance. They entailed a cash transfer to mothers upon the birth of each child and a “dowry” subsidy to young people married before the age of 27.<sup>23</sup>

In the meantime, under a two-year pilot program that began to be implemented by the Social Security Agency (under the MoL) in April 2015, employed mothers of young children (up to 36 months) receive a payment of 300 euros per month for hiring a domestic child-care worker. The MoL, in its announcement of the pilot program funded under a European Union grant, stated that the aim is to support labor market attachment of women, who are often observed to quit employment upon giving birth. The program has been launched in three pilot provinces (Antalya, Bursa, and İzmir) with the aim of supporting employed mothers of small children by hiring in-house child-care workers. The subsidy is conditional on the applicant mother having a maximum salary of no more than double the minimum monthly salary, and the child-care worker hired must be receive social security coverage. The scope of the program is expected to reach 5,000 mothers, for a total budget of 38 million euros over two years (Social Security Agency 2015).<sup>24</sup>

Another subsidy scheme for home-based care relates to the care of disabled people (including the bed-bound elderly and ill).<sup>25</sup> Under the scheme, which has been in effect since 2007, family members who care for disabled or elderly relatives receive payments close to the minimum wage, on the condition that the per capita household income is not higher than two-thirds of the minimum wage. By 2014, the program had reached 427,434 beneficiaries.<sup>26</sup>

Finally, we should note that the *10th Development Plan (2014–2018)* emphasizes the need for the expansion of affordable and high-quality preschool education services both for promoting the social, cognitive, emotional, and physical development of children, particularly from low-income households (see p. 34), and for enabling work-family balance and supporting women’s labor market attachment in tandem with increasing fertility rates (pp. 45, 56). The Plan makes a commitment to increase the preschool enrollment ratio for the 4–5 age group from 47% in 2013 to 70% by 2018 (MoD 2013). Similarly, the Strategic Plan 2010–2014 by the MoE already has a past unmet commitment to raise the preschool enrollment rate for the 3-to-5-year-old age group to above 70% (MoE 2009).

<sup>22</sup> For a comprehensive evaluation of the draft law from a gender perspective, see Toksöz (2015).

<sup>23</sup> The cash transfer to mothers is 300 TRY (100 euros) for the birth of the first child, 400 TRY (130 euros) for the second child, and 600 TRY from the third child onward, effective as of May 15, 2015. The dowry subsidy is conditional on the person marrying before the age of 27 and having a dowry bank account for at least three years prior to marriage. Upon marriage, the account holder is paid a contribution equivalent to 20% of the total amount accumulated in the bank account, up to a maximum of 5,000 TRY (approx. 1,800 euros) (*Official Gazette* 2015a).

<sup>24</sup> The upper salary limit (double the minimum monthly salary) corresponds to a maximum monthly salary of 2,403 TRY between January 1, 2015, and June 30, 2015, and 2,547,00 TRY between July 1, 2015, and December 31, 2015 (Social Security Agency 2015).

<sup>25</sup> The home-based care program for the disabled was adopted in 2007 under Law No. 2022 and is administered by MFSP (see [eyh.aile.gov.tr/sikca-sorulan-sorular/engelli-bakim-hizmetleri](http://eyh.aile.gov.tr/sikca-sorulan-sorular/engelli-bakim-hizmetleri)).

<sup>26</sup> The number of people receiving cash transfers for the care of a disabled family member was obtained from the MFSP by Prof. Dr. Gülay Toksöz (Communication by Prof. Gülay Toksöz to KEİG/KEFA listserve, August 4, 2014). A rough calculation at the net minimum wage of 846 TRY/month suggests that the total annual payments would amount to approximately 4.34 billion TRY in 2014 prices.

## ► IV. EARLY CHILDHOOD CARE AND PRESCHOOL EDUCATION (ECCPE) SERVICES IN TURKEY

### THE LEGAL AND INSTITUTIONAL FRAMEWORK

In Turkey, there are no legal provisions stipulating the establishment of ECCPE institutions by public authorities. The Turkish legal framework concerning ECCPE does not define access to these services as a right for children or parents. As such, central or local governments are not under any legal obligation to provide these services. The only existing legal requirement concerns the obligation of private and public enterprises to provide access to free nurseries for the children of their employees, based on certain criteria. As per Labor Law No. 1475, article 88, private enterprises employing 150 or more women are obligated to set up day-care centers. According to the Regulation on Child-care Centers to be Founded by Public Agencies and Enterprises Subject to Civil Service Law No. 657, public agencies and enterprises are required to provide ECCPE services, if the civil servants they employ have a total of at least 50 children younger than 6 years old. There are an extremely limited number of private enterprises employing 150 and more women (or even 150 female and male employees for that matter). According to the 2012 industry and service statistics by the Turkish Statistical Institute (TÜİK), only 0.5% out of a total of 2.6 million workplaces employ more than 100 people. In addition, a document released by the MoL in response to a parliamentary inquiry shows that as of 2012, a significant portion of this small number of enterprises do not fulfill their obligation to open kindergartens, and that the public supervision of this obligation leaves much to be desired.<sup>27</sup> As for the day-care centers and kindergartens run by public agencies and enterprises, their numbers have been declining since the early 2000s. According to MoE data, the number of such day-care centers and kindergartens has dropped from 419 in 2004 to 148 in 2010 (Ecevit 2010).

<sup>27</sup> The report was presented by the Ministry of Labor to the Turkish parliament in response to a question posed by the main opposition party on employer obligations to child care. The answer by the Ministry has shown that out of the approximately 10,000 workplaces with 150-plus female employees, the Ministry monitored only 172 in the year 2012 with respect to fulfillment of the Labor Law clause on workplace-provided child-care centers. Of these, 76 did not provide employees with any child-care services (Aktaş Salman 2013). Moreover, the fact that the obligation is based on the number of women employees works to the detriment of women, as it encourages discrimination in hiring.

In Turkey, ECCPE services fall under three categories in legal and institutional terms:

- i. Nurseries and day-care centers defined by law as aimed at all children under age 5;
- ii. Kindergartens for children age 3–5; and
- iii. Nursery classes set up in primary schools for 5-year-olds.

Furthermore, the Statute on the Establishment and Operation Principles of Private Kindergartens and Daycare Centers and Private Children’s Clubs defines “children’s clubs” that can offer leisure activities and thus ensure the care and protection of primary school children between ages 6 and 12 (*Official Gazette* 2015b).

The regulatory authority for private nurseries and day-care centers is the MFSP.<sup>28</sup> The MSFP does not establish its own day-care centers but rather has the authority to license and supervise private centers. Private centers are subject to supervision by the MFSP for care services provided to children 0–2 years old. These centers are also subject to supervision by the MoE for the educational services for the 3-to-5-year-old age group. MoE holds the authority to give licenses for the foundation of private kindergartens and nursery classes and to supervise these; it also establishes and runs the public kindergartens and nursery classes. In addition to the MoE, private initiatives, public agencies, local governments, trade unions, large-scale commercial enterprises, associations, and foundations can also apply to the authorizing ministries to set up and run nurseries, day-care centers, and kindergartens.<sup>29</sup>

<sup>28</sup> Day-care centers used to be under the authority of the Social Services and Child Protection Agency. As per the Executive Decree on the Organization and Duties of the Ministry for Family and Social Services No. 633, issued in the *Official Gazette* dated August 6, 2011, and numbered 27958, social assistance and social service agencies were gathered under a single umbrella. Accordingly, the Social Services and Child Protection Agency was closed down, to be replaced with departments within the MFSP. As such, the General Directorate for Services to Children under the MFSP is now responsible for authorizing and supervising kindergartens by real persons and legal entities as per the Regulation on the Establishment and Operation Principles of Private Kindergartens and Day-care Centers and Private Children’s Clubs.

<sup>29</sup> For information on the institutions authorized to open ECCPE service centers in Turkey and the applicable legislation, see Yılmaz and Tuğrul (2012), p. 21, Table 1.

Compulsory education starts at the age of 6. Until 2012, the compulsory starting age in first grade was defined as 72 months as of September, the first month of the academic year. In 2012, as compulsory schooling was increased from 8 to 12 years, the primary school starting age was decreased from 72 months to 66 months. Parents were allowed to postpone primary enrollment for children 66–72 months old only upon providing a medical report stating that the child was not ready to start primary school. Furthermore, it became possible for parents of children 60–65 months old to apply for registration in primary school, if they so choose. This has temporarily led to a shift in the enrollment of 5-year-olds from nursery classes to first grade in primary school. (This is discussed further in the following subsection.) As imposition of a younger starting age in first grade proved problematic and was criticized by both families and educational authorities, the starting age was revised upward again in 2014 to 69–72 months.

Since preschool education is not compulsory, families who benefit from the day-care centers and kindergartens opened under the MoE or by public agencies have to pay a service fee, albeit much lower than the fees paid by the private sector. By law, the criteria and procedures for pricing vary among different institutions (Yılmaz and Tuğrul 2012). In each province, pricing at private day-care centers and kindergartens is the responsibility of the Price Setting Commission, composed of representatives from the governor’s office, local government, revenue office, and commerce directorate. They set the maximum and minimum prices by taking into consideration the socioeconomic conditions of the community as well as operating expenses such as personnel, rent, heating, etc.<sup>30</sup> At the day-care centers and kindergartens managed by public agencies and enterprises, the service fees parents pay are set by the Ministry of Finance, which first consults the General Directorate for Services to Children of the MFSP. In schools opened and managed by the MoE, pricing is done by the Price Setting Commission and the cost is shared between the Ministry and parents at various rates. As per the relevant article of the Labor Law, the preschools opened by private firms to provide places to children of employees cannot charge parents any fees; employers assume the entire financial burden.

## ACCESS TO ECCPE SERVICES

As Turkish legislation does not define access to ECCPE services as a right for either parents or children (with the exception of a very restricted right for employed parents at large workplaces as defined under the above referenced Labor Law 1475, article 88), the current supply of services is very limited. Tables 1–4 show the current situation in Turkey with respect to enrollment by age group and type of ECCPE institution. To start with, there are no official statistics for the enrollment of children under age 3 in ECCPE service institutions (Table 1); this is a striking indication of the lack of institutional services aimed at this age group. MFSP records obtained through a personal communication indicates that as of December 2014, there were 69,200 children enrolled in a total of 1,883 private nurseries, day-care centers, and children’s clubs authorized by the Ministry. Of these, only 8,878 children were under age 3.<sup>31</sup> This corresponds to a 0.2% enrollment rate for this youngest age group (Table 2).

In addition, the MoE provides aggregate preschool enrollment rate statistics for the 3–5 and 4–5 age groups; the disaggregated enrollment rate is provided only for the oldest age group, age 5 (60–72 months), as shown in Table 1. According to MoE data for 2014–2015, enrollment in preschool education among children in the 3-to-5-year-old age group is 33%, up from 27% in 2009–2010 (Table 1). This rise was predominantly due to a national mobilization by the MoE to increase the enrollment of 5-year-old children in nursery classes. In 2009–2012, under the framework of the European Union program to support preschool education in Turkey, there was a campaign to achieve 100% enrollment rates in nursery classes for age 5 (60–72 months) covering 32 provinces out of a total of 81 provinces. As a result, the enrollment rate for this age group reached a peak of 66% in 2012. However, as explained above, as a result of the educational reform in 2012 under which compulsory schooling was increased from 8 to 12 years, the primary school starting age was decreased from 72 months to 66 months; and later, in 2014, the starting age was revised again to 69–72 months. Hence, this explains the observed decline in 5-year-old enrollment rates for 2012 (40%) and 2013 (43%), and the subsequent increase in 2014. Including the 5-year-olds who were enrolled in the first grade of primary

<sup>30</sup> About pricing procedures in the Turkish ECCPE sector, see Yılmaz and Tuğrul (2012), p. 96, Annex 1.

<sup>31</sup> An Information Note on Private Day-care Centers and Nurseries (Özel Kreş ve Gündüz Bakımevleri Hizmetlerine dair Bilgi Notu), MFSP, December 9, 2014.

## PUBLIC INVESTMENT IN SOCIAL CARE SERVICES

school during this transition, the net enrollment rates were above 70% (see note under Table 1).

**TABLE 1: ENROLLMENT RATES IN PRESCHOOL EDUCATION BY AGE GROUP, 2009–2015**

Years	0–3	3–5	4–5	5
2009–2010	N.A	26.92	38.55	N.A
2010–2011	N.A	29.85	43.10	N.A
2011–2012	N.A	30.87	44.04	65.69
2012–2013 <sup>1</sup>	N.A	26.63	37.36	39.72
2013–2014 <sup>1</sup>	N.A	27.71	37.46	42.54
2014–2015	N.A	32.68	41.57	53.78

Source: Ministry of National Education (MoE) statistics (<http://sgb.meb.gov.tr/www/resmi-istatistikler/icerik/64>).

1. Adjusted net enrollment ratio in preprimary education for 5-year-olds is 70.56% in total, 71.02% for boys, and 70.07% for girls. This ratio is calculated by totaling 349,431 students who are 5 years old (i.e., in the preprimary age group) but enrolled in primary education at the request of their parents; plus 561,297 students who are 5 years old and enrolled in preprimary institutions, expressed as the percentage of the total number of 5-year-olds in the population.

In order to assess the enrollment rates disaggregated by age group, we used the number of enrolled students for each age group as provided by the MoE (by the MFSP for age groups younger than 3) and population statistics provided by the Turkish Statistical Institute (Table 2). As mentioned earlier, the enrollment rate for children under age 3 is a dismal 0.2%. As for the

enrollment rates for children age 3 and 4, a continuous upward trend can be seen since 2007. Among those age 3, this rate has risen from 2.9% in 2007–2008 to 9.1% in 2014–2015, and among those age 4, from 13% to 32.4% (Table 2). Despite this upward trend, the preschool enrollment rate remains very low, not only by international standards (as will be discussed shortly) but also with respect to the targets set by the national policy documents discussed in the previous section; specifically, a net preschool enrollment rate target of 70% set by the MoE in its 2010–2014 Strategic Plan; and, more recently, the 70% target enrollment rate for the 4–to-5-year-old age group by 2018 stated in the 10th Development Plan for Turkey.

The number of institutions and enrolled students in the last decade (Tables 3 and 4) reveals that both public and private kindergartens and day-care centers have roughly doubled and students have tripled in number in the last 10 years. As of the 2014–2015 school year, there were 1,150,356 children enrolled in a total of 26,972 ECCPE institutions. The majority (i.e., 723,121 students in 21,037 institutions) were enrolled in nursery classes for 5-year-olds. As far as freestanding ECCPE institutions are concerned (excluding nursery classes that are located in primary schools), while the number of private institutions is higher (3,555 private ECCPE institutions versus 2,380 public), the students in private institutions account for just 32% of all students (138,262 children in private institutions versus 288,973 children in public institutions).

**TABLE 2: ENROLLMENT RATES IN PRESCHOOL EDUCATION BY AGE GROUP, 2007–2015**

Year	0–35 Months			36–48 Months			48–60 Months			60–72 Months		
	Age Population	Number of students	Enrollment rate	Age Population	Number of students	Enrollment rate	Age Population	Number of students	Enrollment rate	Age Population	Number of students	Enrollment rate
2007–08	3,453,863	--		1,117,092	32,614	2.9	1,162,951	151,361	13.0	1,182,909	517,787	43.8
2008–09	3,603,131	--		1,200,634	43,415	3.6	1,194,493	170,228	14.3	1,176,727	591,122	50.2
2009–10	3,707,156	--		1,230,724	50,804	4.1	1,217,441	201,033	16.5	1,194,415	728,817	61.0
2010–11	3,666,151	--		1,273,837	53,766	4.2	1,238,735	237,292	19.2	1,225,563	824,760	67.3
2011–12	3,655,783	--		1,265,286	58,330	4.6	1,278,755	245,865	19.2	1,244,302	865,361	69.5
2012–13	3,671,579	--		1,245,342	91,443	7.3	1,282,036	456,363	35.6	1,283,007	530,127	41.3
2013–14	3,717,426	8,878 <sup>1</sup>	0.2	1,240,578	96,145	7.8	1,248,411	402,053	32.2	1,290,772	561,297	43.5
2014–15	3,821,735	--		1,229,654	111,970	9.1	1,243,144	402,326	32.4	1,250,908	642,365	51.4

Source: Compiled from MoE statistics and Turkstat population statistics.

1. Number of enrolled children in 0–35 months obtained from the MFSP for the 2013–2014 school year.

This suggests that private institutions are of a smaller size than public institutions. Table 5 shows that freestanding public kindergartens have 114.6 students per institution, while private kindergartens authorized by the MoE have an average of 39.8 children enrolled per institution and private nurseries and day-care centers authorized by the MFSP have an average of 26.9 children enrolled per institution. Similarly, the children-to-teacher ratio and class size are higher for public institutions than for private institutions. As of the 2013–2014 school year, a total

of 12,603 teachers were employed in freestanding public kindergartens, with a ratio of 19 children per teacher and an average class size of 28.6 children. In freestanding private kindergartens authorized by the MoE, 8,065 teachers were employed, with 11.5 children per teacher and an average class size of 11.2 children. In freestanding private day-care centers and nurseries authorized by the MFSP there were 6,929 teachers employed, with only 6.2 children per teacher and an average class size of 9.0 children.

**TABLE 3: NUMBER AND TYPES OF INSTITUTIONS, 2004–2015**

Type of Institution	2004–2005	2005–2006	2006–2007	2007–2008	2008–2009	2009–2010	2010–2011	2011–2012	2012–2013	2013–2014	2014–2015
<b>Kindergartens<sup>1</sup> – Total</b>	<b>865</b>	<b>1,095</b>	<b>1,369</b>	<b>1,671</b>	<b>1,698</b>	<b>2,176</b>	<b>2,506</b>	<b>2,916</b>	<b>3,287</b>	<b>3,729</b>	<b>4,167</b>
Public Kindergartens (free-standing, MoE)	539	674	786	916	1,024	1,248	1,452	1,669	1,884	2,087	2,259
Private Kindergartens	326	421	583	755	674	928	1,054	1,247	1,403	1,642	1,908
<b>Day-care Centers and Nurseries<sup>2</sup> – Total</b>	<b>1,605</b>	<b>1,731</b>	<b>1,853</b>	<b>1,929</b>	<b>1,827</b>	<b>1,701</b>	<b>1,703</b>	<b>1,731</b>	<b>1,731</b>	<b>1,701</b>	<b>1,768</b>
Public Day-care Centers and Nurseries <sup>3</sup>	419	410	481	497	322	148	118	130	121	109	121
Private Day-care Centers and Nurseries (MFSP)	1,186	1,321	1,372	1,432	1,505	1,553	1,585	1,601	1,610	1,592	1,647
<b>Total Private Institutions</b>	<b>1,512</b>	<b>1,742</b>	<b>1,955</b>	<b>2,187</b>	<b>2,179</b>	<b>2,481</b>	<b>2,639</b>	<b>2,848</b>	<b>3,013</b>	<b>3,234</b>	<b>3,555</b>
<b>Total Public Institutions</b>	<b>958</b>	<b>1,084</b>	<b>1,267</b>	<b>1,413</b>	<b>1,346</b>	<b>1,396</b>	<b>1,570</b>	<b>1,799</b>	<b>2,005</b>	<b>2,196</b>	<b>2,380</b>
<b>Nursey Classes – Total</b>	<b>13,546</b>	<b>15,727</b>	<b>17,453</b>	<b>18,906</b>	<b>20,128</b>	<b>22,804</b>	<b>23,397</b>	<b>23,978</b>	<b>22,179</b>	<b>21,268</b>	<b>21,037</b>
Public Nursery Classes	13,305	15,198	16,792	18,222	19,545	22,225	22,813	23,373	21,551	20,575	20,220
Private Nursery Classes	241	529	661	684	583	579	584	605	628	693	817
<b>Total ECCPE Institutions</b>	<b>16,016</b>	<b>18,553</b>	<b>20,675</b>	<b>22,506</b>	<b>23,653</b>	<b>26,681</b>	<b>27,606</b>	<b>28,625</b>	<b>27,197</b>	<b>26,698</b>	<b>26,972</b>

Source: MoE statistics (<http://sgb.meb.gov.tr/www/resmi-istatistikler/icerik/64>).

1. Kindergartens refer to preschool for the 3–6 age group and are authorized or administered by the MoE.

2. Day-care centers refer to preschool for the 0–6 age group and private day-care centers are authorized by the MFSP.

3. Public day-care centers are institutions opened in accordance with Law No. 657, article 191. If total public enterprises employees in a district or city have more than 50 children ages 0–6, the day-care center can be opened.

**TABLE 4: NUMBER OF STUDENTS ENROLLED IN DAY-CARE AND PRESCHOOL EDUCATION BY TYPE OF INSTITUTION, 2004–2015**

Type of Institution	2004–2005	2005–2006	2006–2007	2007–2008	2008–2009	2009–2010	2010–2011	2011–2012	2012–2013	2013–2014	2014–2015
<b>Kindergartens<sup>1</sup> – Total</b>	<b>60,481</b>	<b>80,512</b>	<b>100,168</b>	<b>125,427</b>	<b>134,992</b>	<b>180,674</b>	<b>224,314</b>	<b>256,378</b>	<b>275,777</b>	<b>305,914</b>	<b>369,173</b>
Public Kindergartens (free-standing, MoE)	49,110	65,879	80,767	100,687	110,753	148,285	184,545	208,597	219,536	239,217	280,256
Private Kindergartens	11,371	14,633	19,401	24,740	24,239	32,389	39,769	47,781	56,241	66,697	88,917
<b>Day-care Centers and Nurseries<sup>2</sup> – Total</b>	<b>34,598</b>	<b>34,913</b>	<b>41,470</b>	<b>45,857</b>	<b>44,847</b>	<b>45,139</b>	<b>46,724</b>	<b>48,575</b>	<b>51,813</b>	<b>49,275</b>	<b>58,062</b>
Public Day-care Centers and Nurseries <sup>3</sup>	14,509	14,511	17,357	20,900	15,206	8,696	6,776	7,674	7,857	6,459	8,717
Private Day-care Centers and Nurseries (MFSP)	20,089	20,402	24,113	24,957	29,641	36,443	39,948	40,901	43,956	42,816	49,345
<b>Total Private Institutions</b>	<b>31,460</b>	<b>35,035</b>	<b>43,514</b>	<b>49,697</b>	<b>53,880</b>	<b>68,832</b>	<b>79,717</b>	<b>88,682</b>	<b>100,197</b>	<b>109,513</b>	<b>138,262</b>
<b>Total Public Institutions</b>	<b>63,619</b>	<b>80,390</b>	<b>98,124</b>	<b>121,587</b>	<b>125,959</b>	<b>156,981</b>	<b>191,321</b>	<b>216,271</b>	<b>227,393</b>	<b>245,676</b>	<b>288,973</b>
<b>Total Nursery Classes</b>	<b>332,122</b>	<b>425,939</b>	<b>499,211</b>	<b>530,478</b>	<b>618,526</b>	<b>754,841</b>	<b>844,780</b>	<b>864,603</b>	<b>748,289</b>	<b>700,059</b>	<b>723,121</b>
Public Nursery Classes	325,524	411,872	482,212	513,407	601,416	735,754	824,070	842,633	723,762	673,667	689,735
Private Nursery Classes	6,598	14,067	16,999	17,071	17,110	19,087	20,710	21,970	24,527	26,392	33,386
<b>Total ECCPE Enrollment</b>	<b>427,201</b>	<b>541,364</b>	<b>640,849</b>	<b>701,762</b>	<b>798,365</b>	<b>980,654</b>	<b>1,115,818</b>	<b>1,169,556</b>	<b>1,075,879</b>	<b>1,055,248</b>	<b>1,150,356</b>

Source: MoE statistics (<http://sgb.meb.gov.tr/www/resmi-istatistikler/icerik/64>).

- Kindergartens refer to preschool for the 3–6 age group and are authorized or administered by MoE.
- Day-care centers refer to preschool for the 0–6 age group and private day-care centers are authorized by the MFSP.
- Public day-care centers are institutions opened in accordance with Law No. 657, article 191 at public workplaces where employees have a minimum of 50 children under age 6.

**TABLE 5: CHILDREN-TO-TEACHER RATIO AND CLASS AND SCHOOL SIZE BY TYPE OF INSTITUTION, 2013–2014**

Type of Institution	Public Nursery Classes	Public (Free-standing) Kindergartens	Private Kindergartens <sup>1</sup>	Private Day-care Centers and Nurseries <sup>1</sup>	Other Private Day-care Centers and Nurseries <sup>2</sup>
Number of Institutions	20,575	2,087	2,335	1,592	109
Number of Classrooms	28,580	8,362	8,296	4,783	445
Number of Enrolled Children	677,923	239,217	93,089	42,816	6,450
Number of Teachers	35,206	12,603	8,065	6,929	524
Children/Teacher	19.2	19.0	11.5	6.2	12.3
Class size	23.7	28.6	11.2	9.0	14.5
No. Of students per School	32.9	114.6	39.8	26.9	59.2

Source: Compiled from MoE statistics.

- Private kindergartens include all private preschool institutions that are established under authorization by the MoE. Private day-care centers and nurseries include all private preschool institutions that are established under authorization from the MFSP.
- Other private day-care centers and nurseries are institutions established in public workplaces by Law No. 657, article 191.



According to the 2013 edition of the Turkey Population and Health Survey conducted by Hacettepe University every five years (Table 6), one-fourth of working urban women and one-third of working rural women who have young children of preschool age state that they assume all child-care responsibilities on their own. This might suggest that they are employed at home or part-time so as to reconcile work with child care. Out of employed urban women with young children, just 18.3% benefit from institutional child care and 7.3% employ babysitters. The rates are even lower for working rural women: only 4.3% have access to institutional child care and 3% to babysitters. The rates of access to institutional child care or private babysitters vary largely by education level. Only 2.6%

mothers is largely filled by older (grandmothers) or younger (daughters) women in the family: 37.9% of employed women who are primary school graduates and 45.2% of women who are secondary school graduates indicate that their main support for child care comes from their mother, mother-in-law, or daughters.

### COMPARING ACCESS TO ECCPE SERVICES IN TURKEY TO THE OECD

At the moment, Turkey has the lowest rate of access to ECCPE services among all OECD nations (Figures 5–8). Turkey is the only OECD country with no official data on the preschool enrollment rates of children under age 3. The OECD enrollment average for children under age

TABLE 6 : WHO LOOKS AFTER THE CHILDREN OF EMPLOYED MOTHERS?

Properties	Herself	Husband	Other Girl Children	Her Mother	Husband's Mother	Other Boy Children	Other Relatives	Baby-sitter	Day Care, Nursery or Kindergarten	On Maternity Leave	Other	No answer	Total
Urban	24.6	2.2	5.1	19	13.1	1.3	4.6	7.3	18.3	2.2	1.0	1.4	1,670
Rural	34.3	1.4	10.4	9.1	26.0	1.6	8.1	3.0	4.3	0	1.8	0	578
No Education	39.7	2.6	22.4	7.4	15.6	0.8	7.7	0.9	0.5	0	1.1	1.3	237
Primary Schooling	40.0	2.8	12.1	13.0	12.8	4.1	6.8	1.4	2.6	0.1	2.8	1.5	996
Secondary Schooling	38.0	0.4	2.4	8.4	34.4	0	3.9	5.2	5.5	0.3	0	1.4	221
High school and upper	12.6	1.8	0.2	23.0	14.0	0.1	4.6	10.9	28.5	3.3	0.5	0.5	794

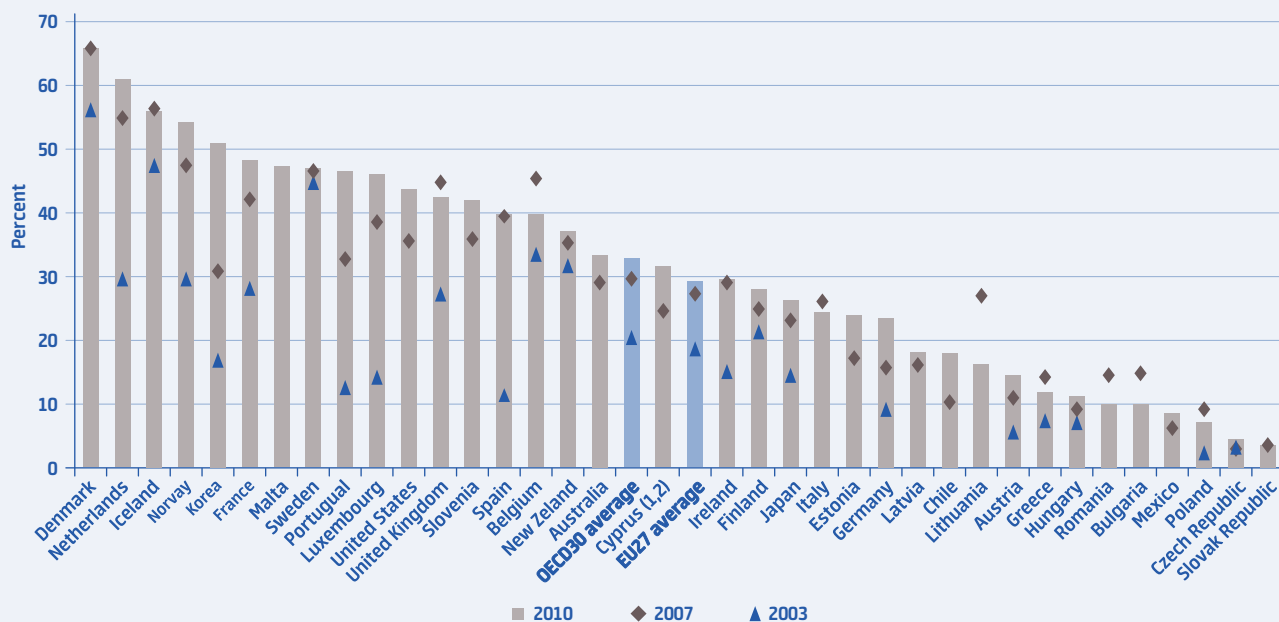
Source: Turkey Demographic and Health Survey 2013, Hacettepe University, Institute for Population Studies.

of employed women who graduated from primary school benefit from institutional child care and just 1.4% of them employ babysitters. Of secondary school graduates, 5.5% have access to institutional child care and 5.2% to babysitters, while these rates, respectively, reach 28.5% and 10.9% among employed women with at least a high school education. Forty percent of primary school graduates and 38% of junior high school graduates state that they assume all child-care responsibilities on their own; however, the percentage drops to 12.6% among women with at least a high school education. As indicated by these figures, the lack of ECCPE services leads not only to gender inequality but also to socioeconomic inequality among women, children, and households.

On the other hand, we see that at every level of education, the child-care service deficit of working

3 is above 30% (Figure 5), while our estimate for Turkey is 0.2% (Table 2). For the overwhelming majority of OECD countries, preschool enrollment rates for 3 year-old children are above 60% (Figure 6). Mexico, Chile, and Colombia post rates of 40% and above; South Korea, 80%; and Spain and France approach 100% (Figure 6). From 4 years of age onward, preschool enrollment rates are almost 100% for most OECD countries, thereby gaining a universal character (Figures 7 and 8). For all age groups, Turkey lags behind by substantial margins. In Turkey, children usually start their preschool education at age 5; this is the latest usual starting age, along with that of Switzerland, among OECD countries (Figure 9). As a result, from a comparative international perspective, Turkey has a strikingly underdeveloped level in ECCPE services, which is among the key subsectors of the SCS sector.

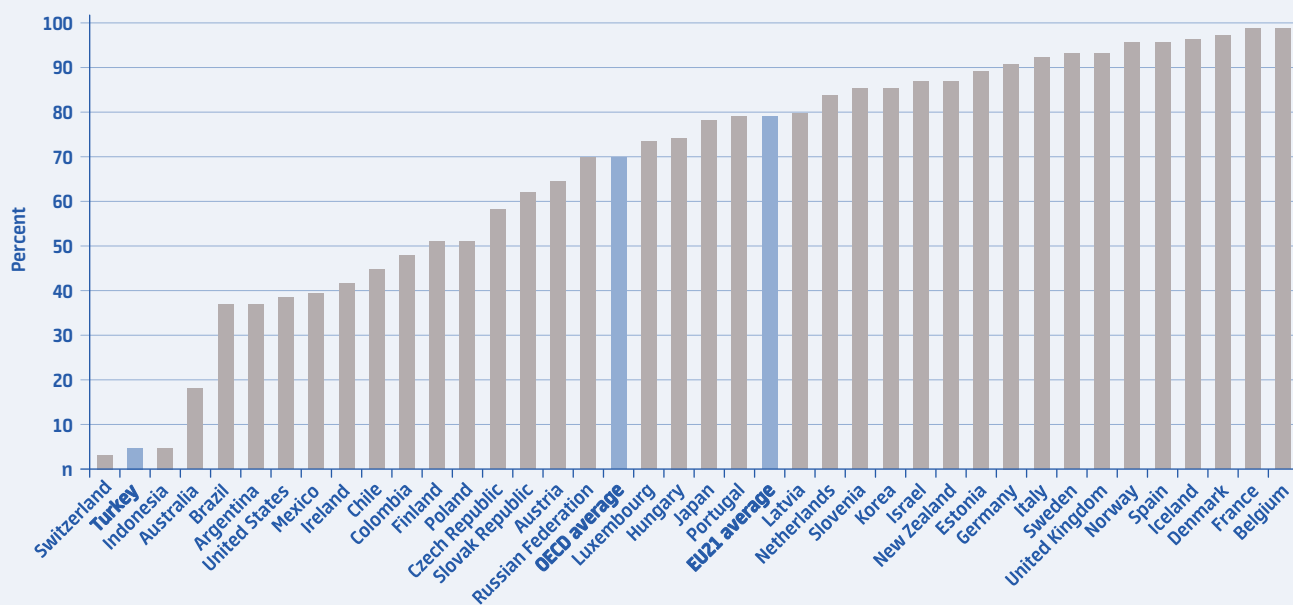
FIGURE 5: ENROLLMENT RATES IN EARLY CHILDHOOD CARE AND PRESCHOOL EDUCATIONAL INSTITUTIONS IN OECD COUNTRIES, 0-2 YEARS OLD



Source: OECD Family database ([www.oecd.org/social/family/database](http://www.oecd.org/social/family/database)).

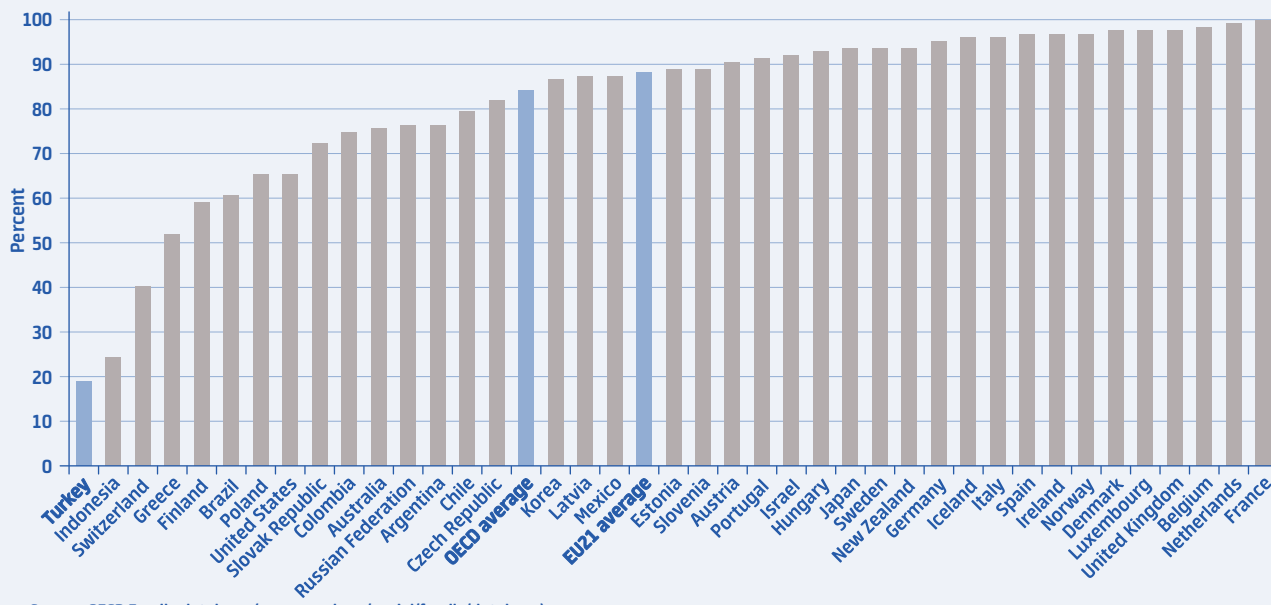
\*No data available for Turkey.

FIGURE 6: ENROLLMENT RATES IN EARLY CHILDHOOD CARE AND PRESCHOOL EDUCATIONAL INSTITUTIONS IN OECD AND SELECTED NON-OECD COUNTRIES, AGE 3, 2012



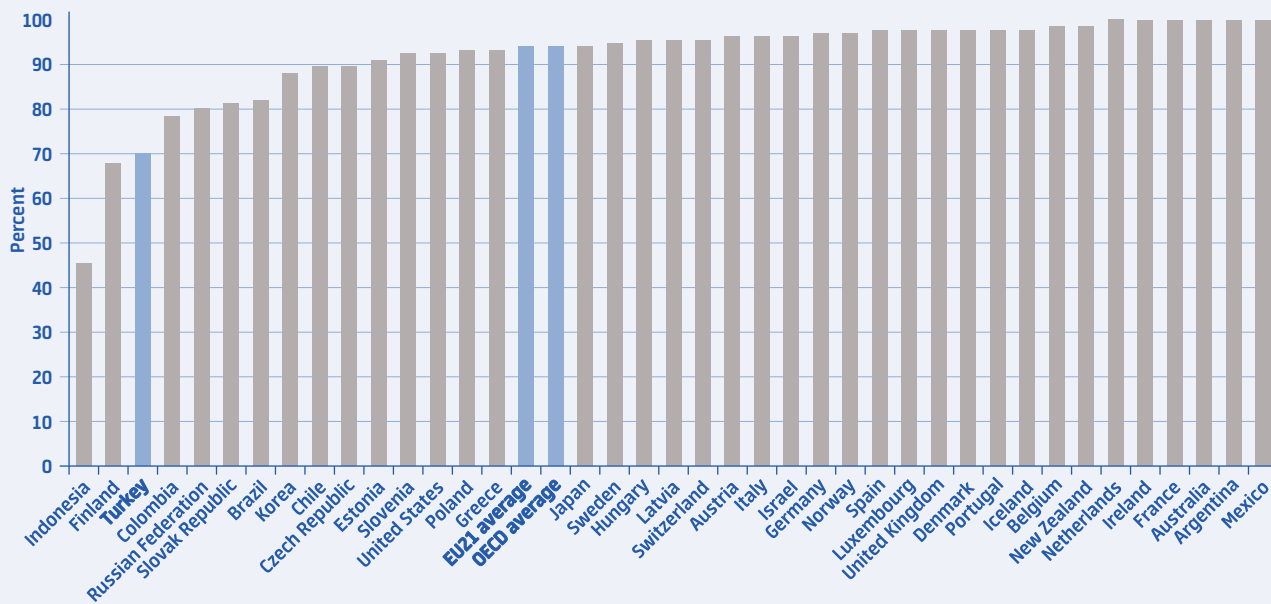
Source: OECD Family database ([www.oecd.org/social/family/database](http://www.oecd.org/social/family/database)).

FIGURE 7: ENROLLMENT RATES IN EARLY CHILDHOOD CARE AND PRESCHOOL EDUCATIONAL INSTITUTIONS IN OECD AND SELECTED NON-OECD COUNTRIES, AGE 4, 2012



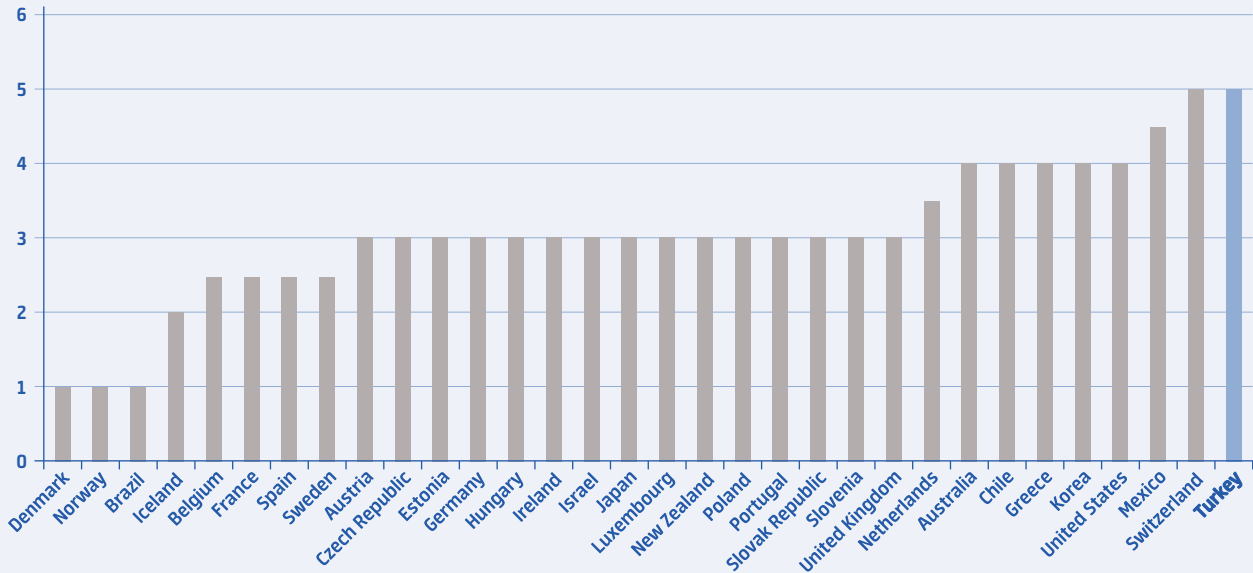
Source: OECD Family database ([www.oecd.org/social/family/database](http://www.oecd.org/social/family/database)).

FIGURE 8: ENROLLMENT RATES IN EARLY CHILDHOOD CARE AND PRESCHOOL EDUCATIONAL INSTITUTIONS IN OECD AND SELECTED NON-OECD COUNTRIES, AGE 5, 2012



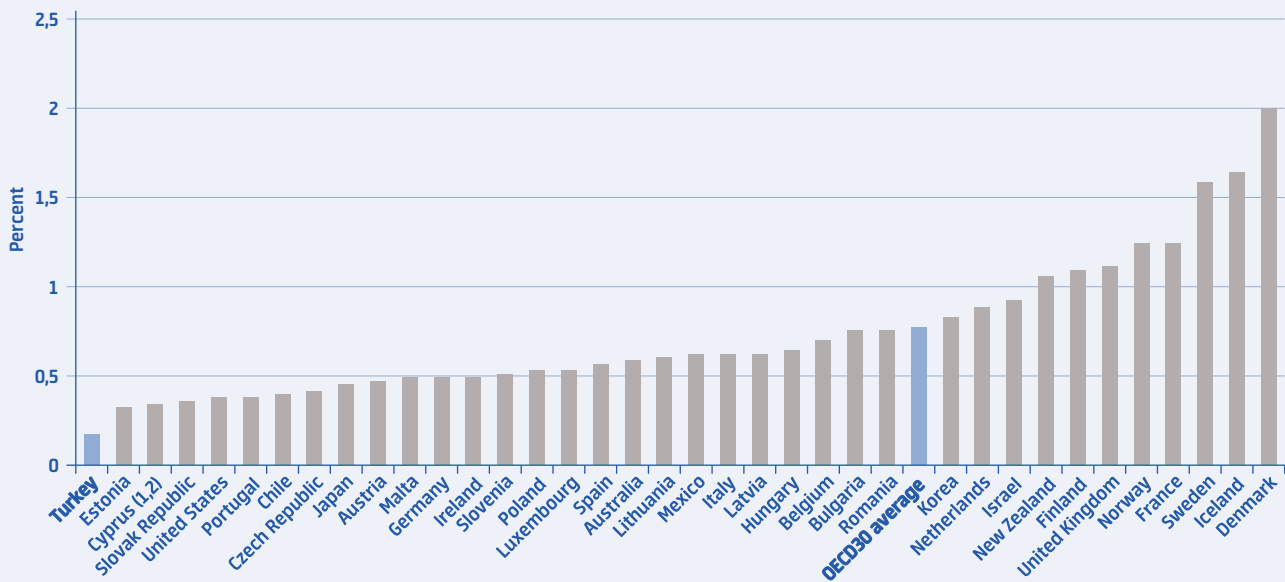
Source: OECD Family database ([www.oecd.org/social/family/database](http://www.oecd.org/social/family/database)).

FIGURE 9: USUAL STARTING AGE IN EARLY CHILDHOOD CARE AND PRESCHOOL EDUCATION IN OECD AND SELECTED NON-OECD COUNTRIES, 2011-2012



Source: OECD Family database ([www.oecd.org/social/family/database](http://www.oecd.org/social/family/database)).

FIGURE 10: TOTAL PUBLIC EXPENDITURE ON EARLY CHILDHOOD CARE AND PRESCHOOL EDUCATIONAL INSTITUTIONS IN OECD AND SELECTED NON-OECD COUNTRIES AS A PERCENT OF GDP



Source: OECD Family database ([www.oecd.org/social/family/database](http://www.oecd.org/social/family/database)).

TABLE 7: PUBLIC EXPENDITURE ON ECCPE IN TURKEY, 2006–2015 (in thousands of TRY prices)

Year	Preschool Education (free-standing ECCPE institutions) (i)	Primary schools (incl. nursery classes)	Nursery Classes estimated <sup>1</sup> (ii)	Total ECCPE (i + ii)	Total Public Education Expenditures	Total Central Public Budget Expenditures	ECCPE Expenditures as share of Total Public Education Expenditures (%)	ECCPE Expenditures as share of Total Central Public Budget (%)	ECCPE Expenditures as share of GDP (%)
2006	192,070	9,970,182	842,098	1,034,168	22,218,521	178,126,033	4.65	0.58	0.14
2007	245,905	11,756,908	993,008	1,238,913	25,720,314	204,067,683	4.82	0.61	0.15
2008	285,350	13,158,257	1,111,368	1,396,718	30,493,022	227,030,562	4.58	0.62	0.15
2009	300,859	14,763,689	1,246,965	1,547,824	35,753,422	268,219,185	4.33	0.58	0.16
2010	376,704	17,139,372	1,447,620	1,824,324	41,469,831	294,358,724	4.40	0.62	0.17
2011	563,602	19,142,996	1,616,849	2,180,451	48,558,263	314,606,792	4.49	0.69	0.17
2012	687,824	22,074,513	1,864,450	2,552,274	56,742,716	361,886,686	4.50	0.71	0.18
2013	624,920	24,217,372	2,045,439	2,670,359	63,510,828	408,224,560	4.20	0.65	0.17
2014 (realized)	800,311	27,892,012	2,355,805	3,156,116	75,698,748	448,423,971	4.17	0.70	0.18
2014 foreseen <sup>2</sup>	8,699,067	20,676,877	---	8,699,067	73,346,341	436,432,901	11.49	1.94	0.50
2014 if OECD ave				23,888,437 <sup>3</sup>			31.51	5.32	1.36
2015 (estimated end-of-the-year) <sup>4</sup>	939,173	30,742,217	2,596,538	3,535,711	82,995,007	480,776,902	4.26	0.74	
2015 foreseen <sup>2</sup>	9,785,716	21,668,708	---	9,785,716	81,694,836	472,942,746	11.98	2.07	

Source: Compiled from Ministry of Finance (MoF), Central Government Budget Expenditures by Functional Classification (code f3) 2006–2015 on expenditures and Turkstat on GDP.

1. Nursery class expenditures are included in primary schools expenditures in official statistics. The figures for nursery class expenditures reported in the table are estimated as 8.45% of total expenditure on primary schools. This percentage is derived from 2011 OECD statistics on Turkey and information provided by the MoE Statistics Division regarding their report to OECD Statistics in 2011.

2. The budget lines foreseen for preschool education for 2014 and 2015 are substantially higher than realized preschool expenditures. The difference is reflected in the budget lines foreseen for primary school expenditures, which are lower than end-of-the-year realized primary school expenditures.

3. Total hypothetical expenditures in order to attain OECD average ECCPE enrollment rates (20.7 billion TRY for additional ECCPE places to be created plus 3.2 billion TRY (column 4, row 10) of realized expenditures in 2014 (see Table 9 below for details).

4. As of the writing of the report, realized expenditures were available up to May 2015; end-of-the-year realized expenditures were estimated on the basis of the average of the first five months.

The same trend is also reflected in the share of the public budget dedicated to preschool expenditures (Figure 10). According to a cross-country comparison by the OECD based on 2011 data, the total public expenditure on early child care and preschool institutions stands at an average of 0.8% for OECD-30. There is a wide range, from a minimum of 0.3% of GDP in Estonia and Cyprus to a maximum of 2% of GDP in Denmark. Table 7 shows our estimates of expenditure trends in Turkey. In 2011, total public expenditure on early child care and preschool institutions constituted about 0.17% of GDP, which is about half of the minimum share of expenditures in OECD-30.

Including nursery classes in primary schools, public expenditure on early child care and preschool stand at 3.2 billion TRY as of 2014. This corresponds to 4.17% of total educational expenditures, 0.7% of the total public budget, and 0.18% of GDP. An interesting observation with respect to the data compiled in Table 7 is that there is a huge increase in the planned budget allocation *foreseen* for preschool expenditures in 2014 and 2015. The planned expenditures are recorded as 8.7 billion TRY in 2014 and 9.7 billion TRY in 2015, which corresponds to approximately 2% of the total public budget and 0.5% of GDP. The actual expenditures, however, continue on the same trend, and remain much below the planned allocation.

Under a recent subsidy scheme that was started by the MoE in 2014, children from households meeting certain eligibility criteria (such as low income or having a deceased parent) receive an annual subsidy to support private school enrollment for preschool as well as primary, secondary, and high school students. For private preschool enrollment, the amount of the subsidy is 2,680 TRY annually in 2015 (up from 2,500 TRY in 2014). The objective of the subsidy program is to provide equal opportunity in terms of enrollment in private schools. Yet it is doubtful whether such an objective can be achieved, since the amount of the subsidy is fixed (i.e., it is not income means tested) and the level is low compared to the prices of private schools in populated urban areas. Given the substantial difference between the average private preschool tuition and the amount of the subsidy, a difference that must be covered by the parents, it is unlikely that the applicants will be from lower income households.<sup>32</sup> In a sense, a partial subsidy for private school enrollment might even facilitate inequalities, since only middle- or higher-middle-income families might be able to afford to pay the rest of the tuition, and hence benefit from the subsidy.

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<sup>32</sup> The average annual price of preschools in the Istanbul area as derived from our field survey was 8,129 TRY in 2014 prices. The subsidy for enrollment in private preschools was 2,500 TRY for the 2014–2015 school year. Hence, a family benefiting from the subsidy would need to afford to cover the difference of 5,629 TRY.

## ► V. METHODOLOGY AND DATA

Against the background outlined in the previous sections, this study aims to assess an economic rationale for increased public expenditure on ECCPE service expansion by employing I-O data to estimate its potential for employment generation at a macroeconomic level, and by simulating the distribution of jobs to various not-employed or unemployed workers and their households in order to estimate possible impacts on gender equality and poverty at a microeconomic level.

It is possible to calculate the volume of new employment that would be created by expanding public expenditures for ECCPE services, and the industrial and occupational distribution of these new jobs, on the basis of output and employment multipliers derived from input-output (I-O) data and the Household Labor Force Survey. The I-O table is a data matrix, which presents the production and expenditure structure of the different sectors that constitute the national economy. The matrix presents the intersectoral transactions, whereby each sector purchases from and/or sells to other sectors intermediate inputs for production. The interindustry linkages generate multiplicative effects that are calculated as output multipliers, which show the effect of an increase of one unit of output of a particular sector on other sectors' output. With the employment data from the Household Labor Force Survey (HHLFS), we calculate employment multipliers, which delineate the effect of an increase of one unit of output of a particular sector on that sector's as well as other sectors' employment. Hence, it becomes possible to estimate the number of jobs likely to be generated through an expansion of ECCPE services in the ECCPE sector itself as well as in the various other industries interacting with ECCPE. For an accurate estimation, we need the ECCPE sector to be represented as a freestanding sector in the I-O table.

The main challenge in the existing input-output tables is that ECCPE expenditure has been aggregated under two different sectors: education (kindergartens for children age 3–5 and nursery classes for children age 5), and health and social services (day-care centers and nurseries for children age 0–6). In addition, there is no existing source of data on the cost structure of the ECCPE that could be used as the input-output data for the sector. To this end, we conducted our own

field survey on the cost and employment structures of child-care centers and preschools in Turkey. Once such disaggregated data on the ECCPE sector is obtained, the sector's specific expenditure structure can be integrated to the I-O table using the "synthetic sector" method. As such, it becomes possible to conduct a more robust analysis of the employment created directly by an expenditure increase in the ECCPE sector while avoiding a bias from the aggregation. Below we present the field survey and then the synthetic sector method.

### CONSTRUCTION OF A SYNTHETIC CARE SECTOR USING THE FIELD SURVEY ON ECCPE INSTITUTIONS

As explained above, it is paramount to separate the cost structure of ECCPE services from other SCS and educational activities in order to avoid any aggregation bias in the multiplier analysis. The presence of bias could result in erroneous multipliers that bear little relevance to the cost structure of the early child-care and preprimary education service sector. Hence, we need to construct a synthetic preprimary education sector based on the corresponding cost information in order to correctly assess the multiplicative effects of expanding the preprimary education sector. To this end, IPSOS, a leading marketing and business research company, was commissioned to conduct a field survey to collect the necessary cost information from day-care centers, nurseries, and kindergartens, with detailed information on various types of goods and services purchased as intermediate inputs. The survey also entailed questions on their employment structure. Face-to-face interviews were carried out with representatives of 77 private and 25 public ECCPE centers in 12 districts of Istanbul in December 2014 – January 2015 (see Appendix 1).

We base our synthetic sector's cost structure of operating a preschool on the results obtained from the field survey. Our hypothetical ECCPE expansion scenario assumes a cost structure similar to the private institutions in the survey, and further assumes a similar level of quality of care to be provided through the proposed expansion of public provisioning. We process the cost information to better reflect the proposal. The survey finds that private schools report 20% of their total costs as the rental payments for physical facilities, while public preschools do not

incur any rental costs, as they are indirectly subsidized by a host public entity (see Appendix 1, Table A1.9). Assuming that the supply of public space is limited and some of the new preschools will be opened in private facilities, we discount half of the share of rental costs in the private preschool cost structure as estimated from the IPSOS survey. In addition, we further discount the share of rental costs to reflect regional differences in commercial real estate rental prices between Istanbul and the rest of Turkey using the latest national real estate data (CBRT 2015). According to the data, the national average real estate rental prices are 83% of the average prices in Istanbul. Furthermore, to reflect the regional differences in general price levels, the cost shares of all other inputs are discounted based on the regional price disparity of 97.75% found in regional price index data (Turkstat 2015b). These adjustments are intended to make the data nationally representative (see Table 8).

After these modifications, we map the expenditure data to the statistical classification of economic activities in the European Community (NACE 1.1). We then assign values of the expenditure to appropriate industry groups in the I-O table of Turkey for 2011, compiled from the University of Groningen's World Input-Output Database (WIOD). The mapping generates a separate cost structure of the preprimary education industry, which was embedded in the education and health and social service sectors in the I-O table.

The synthetic ECCPE sector in the I-O table consists of uses of intermediate inputs, both domestic and imported, taxes less subsidies on products, and value added; all of which sum to the output at basic prices. However, the expenditure data from the IPSOS survey by definition sums to the output at purchasers' prices, which include trade and transport margins as well as taxes (including VAT) and subsidies on products. After the initial mapping of the data, we convert the values into basic prices. First, we impute trade and transport margins from the intermediate expenditures from the 2002 supply table, the most recent benchmark I-O table. The table shows primary and secondary outputs by industry at basic prices, with additional information for the transformation of the output values into purchasers' prices. We compute the ratios of the margins to total supply at purchasers' prices by industry from the transformation and apply them to intermediate inputs of the synthetic sector. Then the margins are summed and distributed

among relevant industries—wholesale, retail trade, inland, water, air transport, and other supporting and auxiliary transport activities—based on their shares of market output from the supply table. After the reallocation, taxes less subsidies on products are imputed similarly. The ratios of the net taxes to total supply at purchasers' prices by industry are applied to the intermediate inputs of the synthetic sector. These two steps generate the input-output account of the synthetic sector at basic prices. However, the account requires further treatment, for it includes imported inputs that do not contribute to domestic production and employment. We impute the values using ratios of imported to total intermediate input use by industry, and subtract the imported portion. The final step yields the/a *domestic* account of the synthetic account of preprimary education in the I-O table. The reallocation and imputation of the margins—net taxes (3.64%) and imported intermediate consumption (6.5%)—result in 54% of total expenditure on domestic

**TABLE 8: INPUT COMPOSITION OF THE ECCPE SERVICE SECTOR IN TURKEY**

Input	Share
Rent	10.3
Electricity, gas and water	10.5
Food	12.6
Catering	0.4
Post and telecommunication	2
Business expenses	2.8
Transportation	1.1
Stationery	4.1
Cleaning and chemistry products	3.9
White goods and electronic products	0.7
Furniture and toy	2.9
Other manufactured products	0.7
Publishing and printing	1.4
Education	1.3
Health	0.3
Financial intermediary expenses	1.2
Building repair, maintenance	5.3
Construction	0.6
Other	1.8
Personnel	35.8
Total	100

Source: IPSOS Field Survey on Cost Structure of ECCPE Institutions (see Appendix I for details).



intermediate consumption, while 35.85% is allotted to personnel cost.

The next step is to insert the domestic input-output account into the original I-O table without violating the symmetry of the table; that is, the total output by expenditure (column sum) must equal the total output by consumption (row sum) for each industry. In principle, it is necessary to compile the data on how much other industries use the output of the preprimary education as an input in their production. However, we can circumvent this challenge with the assumption that the use and supply of the preprimary education equal each other in each industry. For instance, the value of furniture used as an input in the synthetic sector is equal to the value of preprimary education used in the production of furniture. This assumption allows us to maintain the accounting symmetry by making the output of the sector close to zero while keeping the share of each intermediate input—called the technical coefficient—intact. In doing so, the miniscule values enter the corresponding row account of the sector that represents the use of preprimary education as inputs in other industries. This ensures that backward linkages—the effects of an increase in demand for intermediate inputs by the synthetic sector—are fully accounted for, while forward linkages—the effects of an increase in the production of preprimary education on other industries—are not.

The remaining steps to compute the employment multipliers follow the conventions of input-output analysis. First, by taking the Leontief inverse of the I-O table, we compute a matrix of output multipliers. Then we multiply the matrix by the employment intensity of industry (i.e., the number of workers per million USD of output) to yield employment multipliers by industry from the labor force survey. The employment intensity of the synthetic preprimary education sector needs careful treatment because it determines the size of direct employment. According to the IPSOS preschool survey, the student-to-teacher ratio in private schools with full-capacity use is estimated to be 12.7 at the mean. However, the legislation on nurseries and day-care centers dictates the ratio to be 10 for children 0 to 2 years old and 20 for children 3 to 5 years old, in addition to a teacher's aide for each teacher (MFSP 1996). In our proposed preschool setup, we follow the legal guidelines of the MoE and calculate the number of teachers and aides as a ratio of the number of additional children to be enrolled through an ECCPE

expansion. As a target ECCPE enrollment rate, we use the OECD average for each age group. As explained in detail below and shown in Table 8, we estimate that the additional enrollments necessary to raise the preschool enrollment rate in Turkey to the OECD average are 1.2 million children age 0–2 and 2.07 million children age 3–5. Using the legally defined minimum ratios, this amounts to 223,845 teachers and 223,845 aides. In addition, we assume the following composition of nonteaching staff in a school: one manager, one clerk or an assistant manager, and three nonteaching, nonmanagerial workers for cooking, cleaning, and security services. In the IPSOS data, the number of nonteaching staff with a full capacity of 80 students or more is in the range of five to seven, and we take the lower bound from the data for our analysis. Based on the assumption of a school capacity of 100 students, we calculate 163,695 nonteaching staff workers to be hired for preschools.

The required amount of additional ECCPE spending for 3.27 million children age 0–5 is estimated to be 20.7 billion TRY per year, or 1.18% of GDP in 2014; or including existing expenditures, 1.36% of GDP (Table 7). It is based on our estimation of the per-child annual cost using the IPSOS survey. The average per-child cost among private preschools in the survey was originally 7,377 TRY per year, and after the price adjustments mentioned above it drops to 6,333 TRY. Multiplying this cost by the number of children to be enrolled yields 20.7 billion TRY, or 9.5 billion USD per year (see Table 9).<sup>33</sup>

For the interested reader, we provide in Appendix II a comparison with results obtained from injections into the education and health and social services sectors via aggregated I-O tables. A comparison of the findings from an aggregated input-output analysis versus a synthetic sector approach shows that there is a substantial aggregation bias in assuming a similar expenditure and employment structure of the ECCPE sector with that of education and health and social services sectors.

<sup>33</sup> We applied the 2014 annual average exchange rate for dollar conversions. Year 2014 was chosen to be time-comparable to the cost information from the IPSOS survey.

**TABLE 9: ESTIMATED SCALE OF PUBLIC EXPENDITURES FOR ECCPE EXPANSION FOR TURKEY TO REACH OECD AVERAGE ENROLLMENT RATES**

Age	a. Age population	b. Number of enrolled students	c. OECD average <sup>1</sup>	d. Required total capacity to reach OECD average (a x c)	e. Required additional capacity (d - b)	f. Annual cost per student (TRY)	g. Total annual cost (e x f)	h. Annual cost per student (TRY)	i. Total annual cost (e x h)
< 1	1,229,012	--							
1	1,262,391	--							
2	1,226,023	--							
<b>Under 3 total</b>	<b>3,717,426</b>	<b>8,878</b>	<b>33%</b>	<b>1,211,881</b>	<b>1,203,003</b>			<b>8,472<sup>3</sup></b>	<b>10,191,841,416</b>
3	1,240,578	96,145	70%	868,405	772,260				4,763,299,680
4	1,248,411	402,053	84%	1,048,665	646,612				3,988,302,816
5	1,290,772	561,297	94%	1,213,326	652,029				4,021,714,872
<b>3-5 total</b>	<b>3,779,761</b>	<b>1,059,495</b>		<b>3,130,396</b>	<b>2,070,901</b>			<b>6,168<sup>4</sup></b>	
<b>0-5 total</b>	<b>7,497,187</b>	<b>1,068,373</b>		<b>4,342,276</b>	<b>3,273,903</b>	<b>6,333<sup>2</sup></b>	<b>20,732,320,646</b>		<b>22,965,158,784</b>

1. OECD average enrollment rates for 2010 for children under 3 years old and for 2012 for children 3-5 years old; OECD Family database [http://www.oecd.org/edu/EAG2014-indicator%20C2%20\(eng\).pdf](http://www.oecd.org/edu/EAG2014-indicator%20C2%20(eng).pdf).

2. In 2014 prices; derived from IPSOS field survey (see Appendix I), adjusted for Turkey by the regional real estate and consumer price deflators for 2014 (see explanation in discussion of Table 9).

3. Calculated from data based on MFSP pilot exercise for the 2013-2014 school year for an exemplary nursery/day-care center with a capacity of 40 children under 3 years old and a teacher and teacher's assistant for every 10 children.

4. Calculated from data based on MFSP pilot exercise for the 2013-2014 school year for an exemplary nursery/day-care center with a capacity of 60 children 3-5 years old and a teacher and teacher's assistant for every 20 students.

Another data challenge pertains to the latest I-O table for Turkey, which dates from 2002. However, the University of Groningen publishes annual updates of I-O tables for 25 countries, including Turkey, within the framework of the WIOD, on the basis of certain assumptions. This study is based on the latest WIOD update for Turkey, dating from 2011 (see Appendix III on WIOD and IO tables for Turkey).

### MICROSIMULATION FOR A DISTRIBUTIONAL ANALYSIS OF THE EMPLOYMENT GENERATION

The second step in our methodology concerns the assignment of the newly generated jobs for distributional impact analysis. We go through several steps for this analysis. First, we derive the industry-occupation breakdown of the new jobs using the distribution of occupations in each industry estimated from the HHLFS 2011. Then, through a simulation exercise based on the micro data in the SILC 2011, the new jobs in each industry-occupation segment are allocated to employable persons, who are unemployed or inactive for reasons other than retirement, illness, disability, or students less than 20 years old. We statistically match the new jobs to the

employable individuals by personal characteristics such as gender, age, and education level, as well as household characteristics such as income level. The microsimulation algorithm developed by the Levy Economics Institute is used for this purpose. The microsimulation also produces estimates of household income enhancement through such employment generation and the likely impact on poverty. Hence, we are able to evaluate potential impact on gender equality as well as poverty alleviation.

The Levy microsimulation model based on propensity-score matching involves several steps. First, the propensities of working in a particular industry and occupation are estimated and predicted for all employable persons based on their household and individual characteristics using a multinomial probit regression.<sup>34</sup> Then industries and occupations are ranked based on the highest propensity score for each individual. The employment propensity of each

34 We use age, sex, the highest education level attained, relation to household head, marital status, urban/rural, region (out of 12), and class of worker (regular, casual employee, employer, self-employed, or unpaid family worker) to estimate the likelihood of working in a particular industry and occupation.

individual is also estimated using a probit regression.<sup>35</sup> With this information, we match each industry-occupation job to the most likely individuals among the employable persons, until all the new jobs are assigned.

To impute the earnings from the new jobs, first, the log of hourly wage rates and usual weekly hours of work from these jobs are imputed using a three-stage Heckit model within age-gender cells.<sup>36</sup> The independent variables in the wage estimation are age, age squared, marital status, industry, occupation, full-/part-time employment, and the class of worker. For the work-hour estimation, we use age and number of children, education, age, marital status, occupation, class of worker, and the predicted log of hourly wage. As a final step, we use the hot-decking method to impute the earnings of job recipients, and the new earnings are added to their household income.

### COMPARISON TO ALTERNATIVE SCENARIOS OF INCREASED SPENDING

Finally, we compare the results for ECCPE expansion to two alternative scenarios of increased expenditures. First is an expansion of similar magnitude in another reference sector, namely construction. The construction sector entails construction of buildings as well as physical infrastructure. We choose construction as a reference sector to compare the employment-generation impact, since it has served as a major driver of Turkish economic growth for the past decade. Yet in view of the housing price bubbles observed in other economies, the alarming current account deficit plus the negative environmental impact, there has been much scrutiny as to whether construction can actually remain a sustainable engine of growth. For the comparisons with the construction sector, we use the sectoral cost structure as it stands in the 2011 I-O table.

Another comparative scenario of increased public expenditures that we simulate is conditional cash transfers. The transfers have been another item of increased public expenditure in the past decade and, again, have come under scrutiny. Our hypothetical cash-transfer scenario entails conditional transfers

to households in the bottom quintile of the income distribution. We allocate the entire injection amount (20.7 billion TRY) to the bottom quintile of households, as we find in the Survey on Income and Living Conditions (SILC) 2011 that all poor households are in this quintile. To this end, we revise the household sector in the I-O table to distinguish the expenditures of poor households from the upper quintiles based on Turkstat's Household Budget and Expenditure Survey for 2011.<sup>37</sup>

Evidently, the poverty-alleviation impact of such cash transfers would be substantial, yet with limited, if any, sustainability. Hence, in the following analysis, comparisons to the cash-transfer scenario are undertaken only with respect to the number and quality of jobs generated, and the distribution of the new jobs by gender, education, and household income quintile. We do not carry this comparison to the case of poverty alleviation since such a hypothetical targeting of fiscal expenditures concentrates on poor households by construction. The focus of the present study is on the relative impact of different labor demand policies in terms of job creation and gender equality. We note that our proposal for an ECCPE expansion presents a forward-looking policy perspective with dynamic positive externalities in the long run, while growth stimulated through increased expenditure on construction or cash transfers constitutes a backward-looking policy perspective.

<sup>35</sup> In addition to the variables above, the most likely industry and occupation, spousal labor force status, and age squared are added in the probit estimation.

<sup>36</sup> The independent variables in the estimation are urban/rural division, the highest education level attained, marital status, age of children, number of children, age of spouse, spousal labor force status, and spouse's highest education level attained.

<sup>37</sup> Turkstat's Household Budget and Expenditure Survey (HBES) for 2011 includes expenditure data, drawn from a national sample of 9,918 households, on 192 different items. The household expenditures in HBES 2011 were disaggregated by income quintile and budget item. The 192 budget items were mapped into the WIOD sector structure to obtain the quintile shares of each sector. Finally, these shares were used as weights to distribute the expenditures into quintiles of households.

## ▶ VI. FINDINGS

### ESTIMATING A SCALE FOR ECCPE COVERAGE EXPANSION

The first step in our empirical analysis entails the estimation of the amount of the hypothetical increase in ECCPE expenditures. This was already explained in the methodology section above, and the details of the estimation are shown in Table 9. However, a brief note is called for regarding our hypothetical target of an OECD average for preschool enrollment rates in Turkey.

The number of additional children to be covered in a hypothetical ECCPE expansion can range from a minimum of those most in need of ECCPE services (such as children from single-parent households or households under the poverty threshold) to a maximum of universal coverage. While policy implementation may entail short-run targets based on the most urgent need or the most underprivileged, we suggest that the long-term policy goal should be universal coverage, where access to ECCPE services is defined as a child's right. As a medium-run goal toward universal coverage, we take the OECD average enrollment rate as a policy target for Turkey. Hence, we estimate the number of children to be covered in the ECCPE expansion as the additional number of enrollments in ECCPE institutions necessary to bring Turkish ECCPE coverage up to the OECD average.

Table 9 shows the numbers involved in derivation of the amount of the hypothetical increase in ECCPE expenditures necessary to bring the Turkish ECCPE coverage up to the OECD average. Columns *a* and *b* show the population under age 6 and the number of children enrolled in child-care centers and preschools in the 2013–2014 school year disaggregated by age group. Columns *c* and *d* show the OECD average enrollment rate by age group and the total enrollment required in Turkey to reach OECD average enrollment rates. Column *e* shows the additional capacity needed for the expansion. Finally, columns *f* and *g* show the annual approximate cost per child and the total increase in expenditures due to the expansion in ECCPE services necessary for Turkey to reach the OECD average.

According to population census data, there are around 3.7 million children under the age of 3, as of

2013. There are no official data on child-care center enrollment rates in this age group; yet a figure obtained from the MFSP for 2013<sup>38</sup> indicates a total number lower than 9,000 enrollments altogether. Hence, ECCPE institutional services for children under age 3 can be said to be almost nonexistent. In order for Turkey to attain the OECD preschool enrollment average for children under age 3, which is 32.6%, 1.2 million additional places need to be created in child-care centers. As for children age 3–5, the population stands at slightly more than 3.8 million children. The total number of enrolled children in this age group is 1.06 million. In order for Turkey to attain the OECD average preschool enrollment rate for children in the 3–5 age group, which ranges from 70% to 94%, 2.1 million additional places need to be created. Therefore, for all children younger than 6 years of age, a total of 3.3 million additional spaces need to be created by our hypothetical expansion targeting OECD average enrollment rates.

Our estimated average annual cost of 6,333 TRY per child (explained in the methodology section above and in the footnote to Table 9) is then multiplied by the required additional places to reach the OECD averages in order to calculate the total annual variable cost. Accordingly, it would be necessary to spend an additional 20.7 billion TRY annually (in 2014 prices). This is the amount of the injection that we use in our simulation.

### EMPLOYMENT GENERATION THROUGH ECCPE VERSUS PHYSICAL INFRASTRUCTURE AND CASH TRANSFERS

Using input-output analysis, we estimate the new employment opportunities to be created by 20.7 billion TRY of expenditure on ECCPE service expansion versus physical infrastructure or cash transfers (Table 10 and Figure 11). The number of jobs to be created through an expansion of ECCPE toward the targeted OECD average enrollment rate for children under age 6 amounts to 718,693 jobs. This is two-and-a-half times the number of jobs to be created by an expenditure of a similar amount on the construction sector (289,806 jobs). A majority (85.7%) of the job creation through the expansion of the ECCPE sector is direct job creation (i.e., a total of 615,870 jobs in the education sector),

38 Provided by the Ministry of Development from the MFSP on personal communication.

## THE IMPACT ON EMPLOYMENT, GENDER EQUALITY AND POVERTY

while 14.3% is indirect job creation, primarily sales and other services (27,499 jobs) and manufacturing, mining, and utilities (26,678 jobs). In the case of construction, direct employment creation is 70.2% (203,323 jobs in the construction sector), while 29.8% is indirect job creation, again primarily in sales and other services (38,964 jobs) and manufacturing,

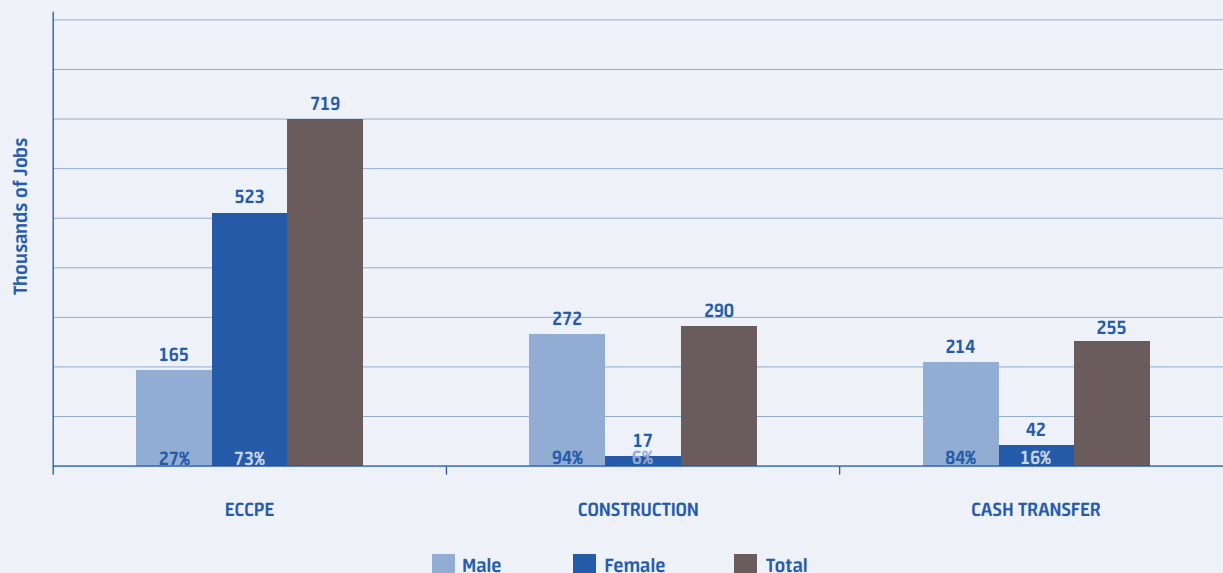
mining, and utilities (30,811 jobs). We note, however, when comparing the absolute number of indirect jobs created, ECCPE still performs better than construction: the ECCPE expansion creates 102,823 indirect jobs in sectors other than education, while a similar expenditure on physical infrastructure creates 86,483 indirect jobs in sectors other than construction.

**TABLE 10: JOB CREATION BY INDUSTRY AND OCCUPATION**

	High professionals	Associate professionals	Service and crafts workers	Production workers	Elementary workers	Total	Share (%)
<b>ECCPE</b>							
Agriculture, forestry and fishing	31	18	42	15,766	3,940	19,797	2.8
Mining, Manufacturing, Utilities	2,501	2,693	2,415	15,666	3,404	26,678	3.7
Construction	1,034	354	583	7,483	3,072	12,525	1.7
Services	5,644	1,738	10,064	7,079	2,973	27,499	3.8
Finance, Real Estate	2,818	2,025	5,283	1,058	3,991	15,175	2.1
Government, health and social services	332	357	351	49	60	1,150	0.2
Education	260,115	206	256,969	60	985,190	615,870	85.7
<b>TOTAL</b>	<b>272,477</b>	<b>7,390</b>	<b>275,708</b>	<b>47,161</b>	<b>115,958</b>	<b>718,693</b>	<b>100</b>
Share (%)	37.9	1.0	38.4	6.6	16.1	100	
<b>CONSTRUCTION</b>							
Agriculture, forestry and fishing	6	3	8	2,969	742	3,729	1.3
Mining, Manufacturing, Utilities	2,749	2,424	2,410	19,081	4,149	30,811	10.6
Construction	16,784	5,740	9,465	121,471	49,863	203,323	70.2
Services	8,616	2,578	14,915	8,775	4,080	38,964	13.4
Finance, Real Estate	2,345	1,715	4,478	832	3,124	12,495	4.3
Government, health and social services	90	88	191	16	17	311	0.1
Education	136	8	15	2	12	173	0.07
<b>TOTAL</b>	<b>30,727</b>	<b>12,556</b>	<b>31,391</b>	<b>153,146</b>	<b>61,986</b>	<b>289,806</b>	<b>100</b>
Share (%)	10.6	4.3	10.8	52.8	21.4	100	
<b>CASH TRANSFER</b>							
Agriculture, forestry and fishing	77	45	104	38,788	9,692	48,707	19.1
Mining, Manufacturing, Utilities	11,731	10,839	10,443	81,808	16,121	130,942	51.3
Construction	373	127	210	2,697	1,107	4,515	1.8
Services	9,771	2,524	21,008	14,201	6,916	54,421	21.3
Finance, Real Estate	1,843	1,274	3,319	772	2,934	10,142	4.0
Government, health and social services	1,041	1,142	1,082	147	185	3,598	1.4
Education	2,244	131	245	38	192	2,849	1.1
<b>TOTAL</b>	<b>27,079</b>	<b>16,084</b>	<b>36,412</b>	<b>138,452</b>	<b>37,148</b>	<b>255,175</b>	<b>100</b>
Share (%)	10.6	6.3	14.3	54.2	14.6	100	

Source: Authors' calculations.

**FIGURE 11: EMPLOYMENT GENERATION POTENTIAL OF EXPENDITURE ON ECCPE SERVICE PROVISIONING VERSUS CONSTRUCTION BOOM VERSUS CONDITIONAL CASH TRANSFERS**



Source: Authors' calculations.

In the case of cash transfers, an equivalent amount of expenditure channeled into conditional cash transfers for households in the bottom quintile of the income distribution is estimated to create approximately 255,175 new jobs. Of this number, more than half of the jobs (130,942) are created in manufacturing, mining, and utilities. This is followed by sales and other services (54,421 jobs). Hence, an ECCPE expansion, beyond the other obvious advantages over cash transfers, is also far superior in terms of employment generation, creating 2.8 times more jobs than those created through cash transfers.

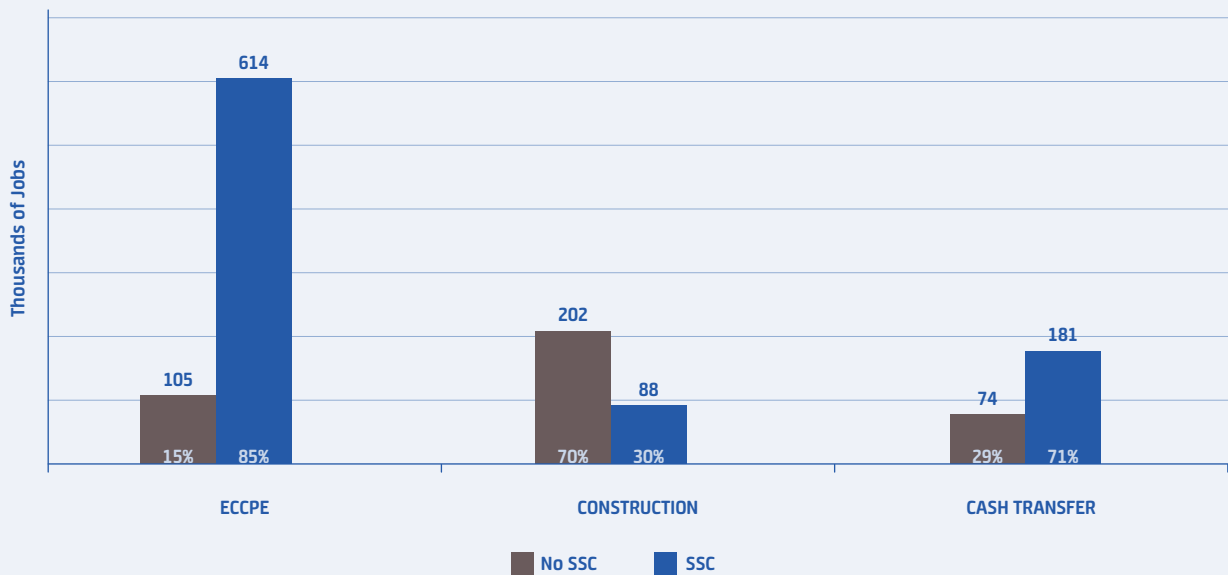
As for the occupational distribution, 37.9% of the jobs created through an ECCPE expansion are concentrated in high-skilled professional occupations (272,477 jobs), 38.4% in service and crafts workers (275,708 jobs), and 16.1% in elementary workers (115,958 jobs). In the case of construction and cash transfers, the majority of the jobs (52.8% and 54.3%, respectively) are concentrated in production workers (153,146 jobs and 138,452 jobs) followed by elementary workers (61,986 jobs and 37,148 equaling 21.4% and 14.6% of the total).<sup>39</sup> While in relative terms

ECCPE expansion creates more jobs in higher-skilled occupations than in the case of construction and cash transfers, in terms of absolute numbers it creates two-to-three times more low-skilled elementary jobs than construction or cash transfers.

We have also used the profile of job characteristics (formal versus informal jobs) by industry and occupation in the HHLFS in order to estimate the distribution of newly generated jobs in our simulation by various job-quality indicators such as social security coverage and type of contract (Figure 12 and 13). Out of the 718,693 new jobs to be created through an ECCPE expansion, 613,685 jobs (85.4%) are registered under social security. Construction, on the other hand, creates 202,262 out of 289,807 jobs, with no social security coverage (69.8%), indicating a prevalence of nonregistered workers in the construction industry. Cash transfers create 181,258 out of 255,175 jobs (71%) registered under social security. As for a type of contract, 83.4% of the new jobs to be created through an ECCPE expansion are jobs with permanent contracts of unlimited duration, 10.5% are jobs with temporary contracts of limited duration, and 6.1% are occasional jobs without a contract. In the case of construction, the new jobs created are predominantly (64.1%) occasional jobs without a contract; 24.6% are permanent jobs and 11.3% are temporary jobs with contracts of limited duration. Cash transfers trail

<sup>39</sup> The occupational classification used in the simulation is mapped to ISCO 2008 as follows: High skilled professionals: Managers and professionals; Associate professionals: Technicians and associate professionals and Clerical support workers; Service and crafts workers: Service and sales workers, Craft and related trades workers; Production workers: Skilled agricultural, forestry and fishery workers, Plant and machine operators, and assemblers; Elementary workers: Elementary occupations.

FIGURE 12: QUALITY OF NEW JOBS: SOCIAL SECURITY COVERAGE

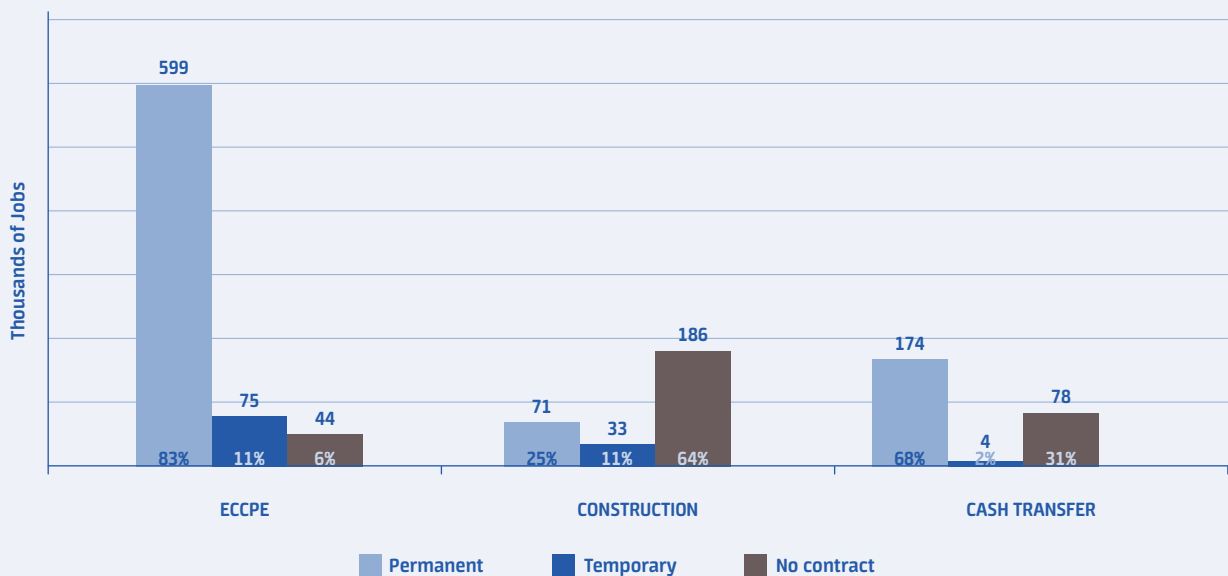


Source: Authors' calculations.

behind ECCPE in that 68% of new jobs from the cash transfers are for permanent contract with unlimited duration. However 30.5% of the new jobs are occasional ones without a contract and 1.5 % are temporary jobs

of limited duration. Hence, an ECCPE expansion performs far better both in terms of the number of jobs created per each TRY spent and the quality of the jobs created. ECCPE creates more decent jobs.

FIGURE 13: QUALITY OF NEW JOBS: TYPE OF CONTRACT



Source: Authors' calculations.

## DISTRIBUTION OF JOBS BY DEMOGRAPHIC CHARACTERISTICS, LABOR MARKET STATUS, AND HOUSEHOLD INCOME

Beyond the distribution of jobs by industry, occupation, and job quality, another question that arises is who are the recipients of these new jobs. As far as the motivation behind this undertaking is concerned, of primary interest is whether the recipients are women or men. Beyond gender, we also profile the job recipients by age group, education level, marital status, labor market status, and household income group. We are able to undertake such a profiling exercise through the second step of our analysis, involving a microsimulation based on the Survey on Income and Living Conditions, as explained in the previous section on data and methodology.

Table 11 and Figures 11, 14-16, show the various characteristics of the recipients of new jobs through an ECCPE expansion versus a construction boom or cash transfers. The most striking result here concerns the gender ratio of the new job recipients. In the case of ECCPE, as much as 73% of the new job recipients are women, versus only 6% and 16% female job recipients in the cases of construction and cash transfers respectively. This result reflects the industrial and occupational gender segregation in the Turkish labor market. Nevertheless, in terms of absolute numbers (Figure 11), ECCPE still creates a substantial number of jobs for men (195,463 male jobs), with close to three-quarters (72%) of the male jobs created by construction (272,386 male jobs) and 91% of the male jobs created by cash transfers (213,666 male jobs).

**TABLE 11: DISTRIBUTION OF JOBS BY GENDER, DEMOGRAPHIC CHARACTERISTICS, LABOR MARKET STATUS, AND HOUSEHOLD INCOME**

	ECCPE					CONSTRUCTION					CASH TRANSFER				
	Men	Women	Total	Group share (%)	Female share (%)	Men	Women	Total	Group share (%)	Female share (%)	Men	Women	Total	Group share (%)	Female share (%)
<b>AGE</b>															
LT25	33,508	48,566	82,074	11	59	50,461	1,600	52,061	18	3	30,285	7,783	38,068	15	20
25-40	121,757	348,602	470,359	65	74	117,810	15,697	133,507	46	12	111,751	32,210	143,961	56	22
41-54	37,206	78,814	116,020	16	68	91,726	124	91,850	32	0	67,067	1,512	68,579	27	2
55+	2,992	47,248	50,240	7	94	12,389	0	12,389	4	0	4,563	0	4,563	2	0
<b>Total</b>	<b>195,463</b>	<b>523,230</b>	<b>718,693</b>	<b>100</b>	<b>73</b>	<b>272,389</b>	<b>17,421</b>	<b>289,807</b>	<b>100</b>	<b>6</b>	<b>213,666</b>	<b>41,505</b>	<b>255,171</b>	<b>100</b>	<b>16</b>
<b>EDUCATION</b>															
Secondary or less	54,150	80,246	134,396	19	60	194,175	3,412	197,587	68	2	144,035	15,860	159,895	63	10
High school	12,411	80,336	92,747	13	87	35,970	9,366	45,336	16	21	28,283	17,550	45,833	18	38
University	128,902	362,648	491,550	68	74	42,241	4,643	46,884	16	10	41,348	8,095	49,443	19	16
<b>Total</b>	<b>195,463</b>	<b>523,230</b>	<b>718,693</b>	<b>100</b>	<b>73</b>	<b>272,386</b>	<b>17,421</b>	<b>289,807</b>	<b>100</b>	<b>6</b>	<b>213,666</b>	<b>41,505</b>	<b>255,171</b>	<b>100</b>	<b>16</b>
<b>HH INCOME QUINTILE</b>															
1 <sup>st</sup>	36,402	45,913	82,315	11	56	139,537	1,435	140,972	49	0.5	66,562	2,613	69,175	27	4
2 <sup>nd</sup>	45,572	75,177	120,749	17	62	59,825	3,984	63,809	22	6	68,497	7,011	75,508	30	9
3 <sup>rd</sup>	31,869	78,925	110,794	15	71	30,521	1,961	32,482	11	6	34,454	10,214	44,668	18	23
4 <sup>th</sup>	37,343	148,269	185,612	26	80	28,218	3,810	32,028	11	12	23,786	8,668	32,454	13	27
5 <sup>th</sup>	44,277	174,946	219,223	31	80	14,285	6,231	20,516	7	30	20,367	12,999	33,366	13	39
<b>Total</b>	<b>195,463</b>	<b>523,230</b>	<b>718,693</b>	<b>100</b>	<b>73</b>	<b>272,386</b>	<b>17,421</b>	<b>289,807</b>	<b>100</b>	<b>6</b>	<b>213,666</b>	<b>41,505</b>	<b>255,171</b>	<b>100</b>	<b>16</b>

Source: Authors' calculations.



**TABLE 11: DISTRIBUTION OF JOBS BY GENDER, DEMOGRAPHIC CHARACTERISTICS, LABOR MARKET STATUS, AND HOUSEHOLD INCOME (CONTINUED)**

	ECCPE					CONSTRUCTION					CASH TRANSFER				
	Men	Women	Total	Group share (%)	Female share (%)	Men	Women	Total	Group share (%)	Female share (%)	Men	Women	Total	Group share (%)	Female share (%)
<b>SELF-REPORTED LABOR MARKET STATUS</b>															
Unemployed	157,003	95,744	252,747	35	38	237,032	5,263	242,295	84	2	182,743	13,271	196,014	77	7
Student	14,270	19,373	33,643	5	58	12,909	2	12,911	4	0	5,643	38	5,681	2	1
Homemaker	2,236	394,203	396,439	55	99	0	12,156	12,156	4	100	0	28,196	28,196	11	100
Other inactive	21,954	13,910	35,864	5	39	22,445	0	22,445	8	0	25,280	0	25,280	10	0
<b>Total</b>	<b>195,463</b>	<b>523,230</b>	<b>718,693</b>	<b>100</b>	<b>73</b>	<b>272,386</b>	<b>17,421</b>	<b>289,807</b>	<b>100</b>	<b>6</b>	<b>213,666</b>	<b>41,505</b>	<b>255,171</b>	<b>100</b>	<b>16</b>
<b>MARITAL STATUS</b>															
Never married	103,476	97,442	200,918	28	48	66,284	4,64	70,294	24	7	48,379	10,098	58,477	23	17
Married	87,756	368,711	456,467	64	81	204,408	12,668	217,076	75	6	162,636	29,132	191,768	75	15
Widowed or divorced	4,231	57,077	61,308	8	93	1,694	113	1,807	1	6	2,651	2,275	4,926	2	46
<b>Total</b>	<b>195,463</b>	<b>523,230</b>	<b>718,693</b>	<b>100</b>	<b>73</b>	<b>272,386</b>	<b>17,421</b>	<b>289,807</b>	<b>100</b>	<b>6</b>	<b>213,666</b>	<b>41,505</b>	<b>255,171</b>	<b>100</b>	<b>16</b>
<b>PREVIOUS PAID WORK EXPERIENCE</b>															
Yes	184,773	521,631	706,404	99	73	245,898	17,412	263,310	95	6	186,724	40,177	226,901	91	18
No	7,300	49	7,349	1	0	13,469	9	13,478	5	0	23,031	122	23,153	9	1
<b>Total</b>	<b>192,073</b>	<b>521,680</b>	<b>713,753</b>	<b>100</b>	<b>73</b>	<b>259,367</b>	<b>17,421</b>	<b>276,788</b>	<b>100</b>	<b>6</b>	<b>209,755</b>	<b>40,299</b>	<b>250,054</b>	<b>100</b>	<b>16</b>

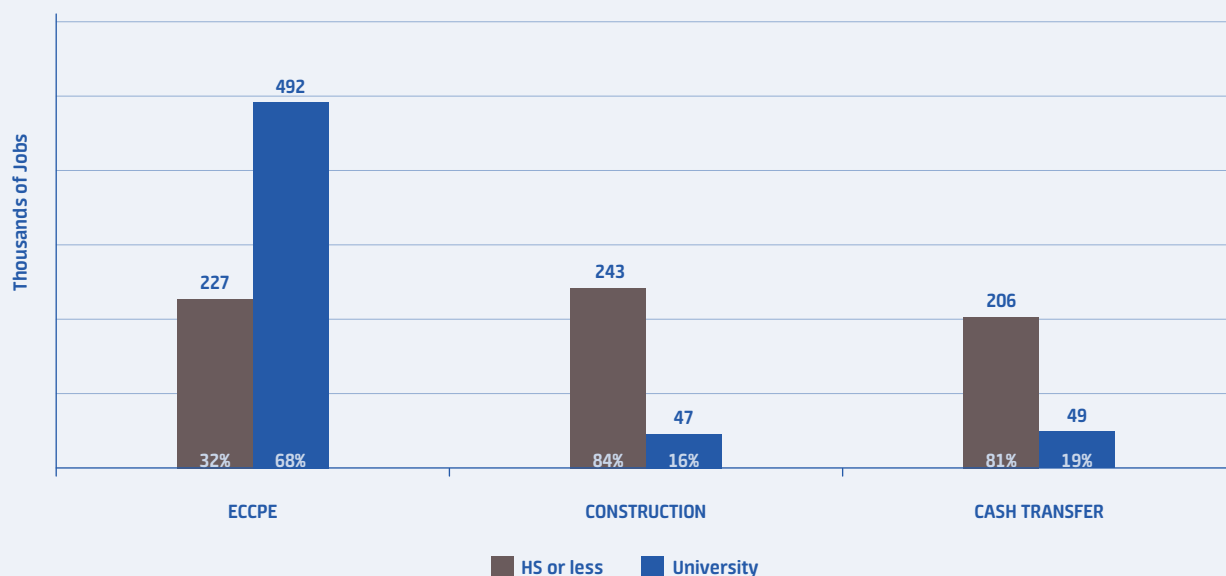
Source: Authors' calculations.

The majority of jobs, or 81%, go to workers of prime working age (25–54) and 11% of the jobs created through an ECCPE expansion go to workers who are less than 25 years of age; the remaining 7% go to workers over 55 years of age. In the case of construction (cash transfers), the shares are 18% (15%), 78% (83%), and 4% (2%), respectively. While construction creates relatively more jobs for the young within its own distribution, in terms of absolute numbers, ECCPE creates 82,074 jobs for those under age 25, versus 52,061 and 38,068 young job recipients through construction and cash transfers respectively.

Jobs created through ECCPE are predominantly for university graduates (68% of the total), while 32% go to those with a high school education or less (Figure 14). It is the reverse for construction: 84% of the new jobs go to those with a high school education or less, while the share of university graduates is 16%. In the case of cash transfers, 81% of the new jobs go to

workers with high school education or less and 18% to university graduates. Nevertheless, given the much-higher job creation potential of the ECCPE service sector, the absolute number of new jobs created for workers with a high school education or less through an ECCPE expansion (227,000 jobs) is similar to the number of such jobs created through a construction boom (243,000 jobs) or an increase in conditional cash transfers (206,000 jobs).

FIGURE 14: JOB RECIPIENTS BY EDUCATION LEVEL



Source: Authors' calculations.

A majority of the job recipients (81% in ECCPE, 75% in construction and cash transfers) are married in all scenarios. The main difference is that more jobs go to widowed or divorced women (57,077) in the case of ECCPE, versus only 113 widowed or divorced female job recipients in the case of construction and 4,926 in the case of cash transfers.

More than half of the job recipients in ECCPE are women engaged in domestic work (394,203 female homemakers are estimated to become employed), while in the case of construction and cash transfers the majority are unemployed men (Figure 15). Nevertheless, ECCPE still creates more jobs for the unemployed (157,003 jobs for unemployed men and 95,744 jobs for unemployed women, amounting to a total of 252,747 jobs for unemployed people) than construction (237,032 jobs for unemployed men and only 5,263 jobs for unemployed women, amounting to a total of 242,295 jobs for unemployed people) and cash transfers (182,743 jobs for unemployed men and only 13,271 jobs for unemployed women, amounting to a total of 194,014 jobs for unemployed people).

A striking finding is that the majority of the job recipients in our simulation are people with previous paid-work experience: 99% of ECCPE, 95% of construction, and 91% of cash transfers job recipients have previous work experience but are currently either unemployed or out of the labor market due to full-time

homemaking, being in school (but older than 25), or some reason other than health or old age. In the case of ECCPE, 521,631 women out of the 521,680 female job recipients report having previous employment experience; of these, a majority report having worked as a regular employee at their last job (444,935 new job recipients). In the case of construction, out of the 259,367 male job recipients, 245,898 report previous employment experience; of these, a majority report having worked as a casual employee at their last job (198,974 new job recipients).

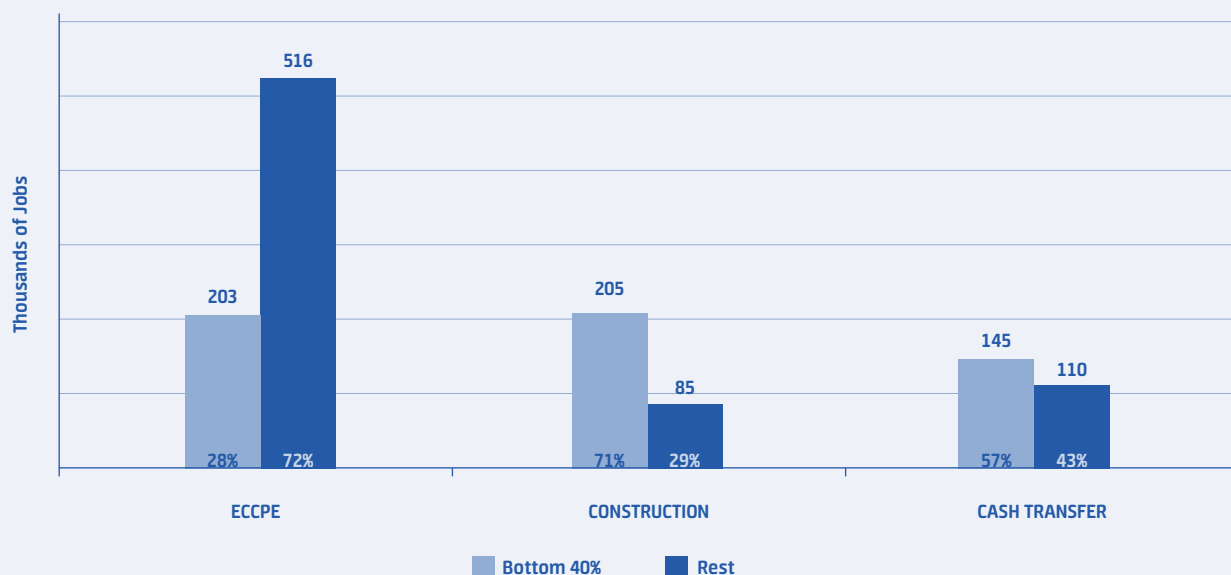
As for the distribution of jobs by household income level, only 11% (82,315 jobs) and 17% (120,749 jobs) of the new jobs created through the ECCPE expansion go to the lowest and second-lowest quintiles of the income distribution, respectively (Table 11). By contrast, 49% (140,972 jobs) and 22% (63,809 jobs) of the new jobs created through construction go to the lowest- and second-lowest quintiles of the income distribution. In the case of cash transfers, the shares of the bottom income quintiles in new jobs are 27% (69,175 jobs) and 30% (75,508 jobs). As far as a comparison of absolute numbers is concerned, however, an ECCPE expansion creates a substantial number of jobs—203,000—for recipients from the bottom 40% of households; this is similar to the construction case, which provides 205,000 such jobs (Figure 16). This is also a higher number of jobs than

FIGURE 15: JOB RECIPIENTS BY PREVIOUS LABOR MARKET STATUS



Source: Authors' calculations.

FIGURE 16: JOB RECIPIENTS BY HOUSEHOLD INCOME



Source: Authors' calculations.

in the case of cash transfers, where 145,000 new jobs are created for recipients from the bottom 40% of households. A gender disaggregation shows, however, that ECCPE is much more pro-poor women than construction (Table 11). Under ECCPE, 45,913 women

in bottom income quintile receive jobs (6.4% of new jobs), while under construction and cash transfers, only 1,435 and 2,613 women respectively from the bottom income quintile receive jobs (only 0.5% and 4% of new jobs).

## IMPACT ON POVERTY THROUGH EMPLOYMENT GENERATION

The first half of Table 12 shows a comparison of the household income-enhancement effects of the expansion of ECCPE versus construction for job recipient households. Comparing the increase in the mean and median income for each household quintile, we note that both ECCPE and construction yield the largest income-enhancement effect for the bottom quintile, and this income-enhancement effect becomes progressively smaller going up the income ladder. ECCPE employment generation increases the

mean (median) income of the lowest quintile by 58.1% (28.0%), and by 46.0% (23.1%) for the second-lowest quintile. The income-enhancement effect is smallest for the top quintile at only 8.0%, as far as mean income is concerned. The results for construction are similar in that the largest income-enhancement effect is for the bottom quintile at 104.1% (74.5%) for mean (median) income. As far as mean income is concerned, the enhancement effect becomes progressively smaller, declining to 40.9% for the top quintile. As for median income, the effect is lowest for the third quintile, at 39.8%.

**TABLE 12: HOUSEHOLD INCOME CHANGES AMONG JOB RECIPIENTS**

HH Income Quintile	Mean		Median		Increase (%)	
<b>Job recipient households</b>						
<b>ECCPE</b>						
	<b>Before</b>	<b>After</b>	<b>Before</b>	<b>After</b>	<b>Mean</b>	<b>Median</b>
1 <sup>st</sup>	3,611	5,710	3,758	4,810	58.1	28.0
2 <sup>nd</sup>	6,625	9,675	6,587	8,111	46.0	23.1
3 <sup>rd</sup>	9,256	13,388	9,241	11,311	44.6	22.4
4 <sup>th</sup>	13,267	16,152	13,171	14,857	21.7	12.8
5 <sup>th</sup>	30,463	32,908	24,660	28,104	8.0	14.0
<b>CONSTRUCTION</b>						
1 <sup>st</sup>	3,435	7,010	3,490	6,091	104.1	74.5
2 <sup>nd</sup>	6,341	11,731	6,253	9,253	85.0	48.0
3 <sup>rd</sup>	9,241	14,547	9,169	12,815	57.4	39.8
4 <sup>th</sup>	12,474	19,251	12,010	16,855	54.3	40.3
5 <sup>th</sup>	34,416	48,506	21,850	32,849	40.9	50.3
<b>All households</b>						
<b>ECCPE</b>						
	<b>Before</b>	<b>After</b>	<b>Before</b>	<b>After</b>	<b>Mean</b>	<b>Median</b>
1 <sup>st</sup>	3,576	3,616	3,704	3,721	1.1	0.5
2 <sup>nd</sup>	6,524	6,620	6,497	6,517	1.5	0.3
3 <sup>rd</sup>	9,248	9,344	9,213	9,235	1.0	0.2
4 <sup>th</sup>	13,085	13,250	12,930	13,000	1.3	0.5
5 <sup>th</sup>	27,997	28,149	22,390	22,578	0.5	0.8
<b>CONSTRUCTION</b>						
1 <sup>st</sup>	3,579	3,702	3,706	3,764	3.4	1.6
2 <sup>nd</sup>	6,527	6,609	6,500	6,527	1.3	0.4
3 <sup>rd</sup>	9,249	9,293	9,213	9,229	0.5	0.2
4 <sup>th</sup>	13,088	13,123	12,935	12,957	0.3	0.2
5 <sup>th</sup>	27,997	28,063	22,391	22,410	0.2	0.1

Source: Authors' calculations.

It is striking that for all income quintiles, construction-generated jobs lead to a greater income increase in the households of job recipients than in the case of ECCPE-generated jobs. This result derives primarily from the gender earnings gap. A comparison of earnings by gender, education, and sector in Table 13 shows that the earnings of both men and women in the education sector are generally higher than their counterparts in the construction sector. The only exception where the pay advantage favors construction is for female high school graduates, whose mean and median earnings in education are about 72%–75% of similarly educated women employed in construction. Yet there is a substantial gender pay gap for each education level within both the education and the construction sector. The gender gap for workers with secondary education or less employed in the construction sector is the worst, with women earning only 37% of what men earn in terms of mean income (51% in terms of median income).

Controlling for level of education, we observe men’s mean earnings in construction to be substantially higher than women’s mean earnings in education. For those with secondary education or less, the annual mean earnings of women employed in education are about 77% of men’s mean earnings in construction. The gender-by-sector mean earnings differential is 63% for high school graduates and 68% for university graduates.<sup>40</sup> The synthetic sector estimated earnings reflect an even wider gender earnings gap. This is reflective of the women who are assigned jobs in the simulation having characteristics that lead to lower earnings, such as being married, having children, and also being older. Moreover, it might also be a reflection of the pay differentials among the education subsectors (i.e., relatively lower wages in preschool education compared to the wages paid in primary education and above).

The second half of Table 12 shows the income-enhancement effect for all households in the five income quintiles before and after the allocation of jobs. As expected, the income-enhancement effects are lower when all households are taken into account rather than only job-recipient households. The increase in the mean (median) income of the bottom quintile of households is higher at 3.4% (1.6%) under

the construction case than in the ECCPE case, where it is 1.1% (0.5%). Beyond the higher labor earnings of men in construction compared to women in education, as discussed above (Table 13), this is a result of the greater number of jobs for the bottom quintile generated by a construction expansion (139,537 new jobs by construction versus 82,315 new jobs by ECCPE for workers in the bottom quintile, as shown in Table 11).

For the rest of the top income quintiles of all households (second half of Table 12), the income-enhancement effect is slightly stronger in the case of ECCPE than for construction. The mean income of the second-lowest quintile increases by 1.5% in the case of ECCPE expansion, versus 1.3% for construction. The increase is 1.0%, 1.3%, and 0.5%, respectively, for the third, fourth and fifth quintiles for ECCPE expansion, versus 0.5%, 0.3%, and 0.2% for construction. For the upper four quintiles, the larger number of jobs generated through ECCPE more than compensates for the greater income-enhancement effect of construction.

Beyond the income enhancement effects, Table 14 shows the estimated impact on poverty alleviation. As the Turkish Statistical Institute has adopted the relative poverty measure in recent years, we use the relative OECD poverty threshold, defined as 50% of median income, in order to identify the poor. A complication of reporting the change in the poverty incidence using a relative poverty threshold is that the median income increases through the simulation, such that the relative poverty threshold moves upward. In order to isolate the change in the income position of job recipient households independent of a simultaneously moving poverty threshold, we report the outcome for a relative as well as a fixed poverty threshold.

Of the 718,693 job recipients resulting from an ECCPE expansion, only 49,797 people are below the relative poverty line. Of these, 24,730 (49.7%) move out of poverty and 25,067 continue to remain poor despite now having a paid job, such that the poverty incidence decreases from 6.9% to 3.5% among ECCPE job recipients. In terms of the total population, before the simulation there are 60.7 million people who are nonpoor and 11.7 million people who are poor, corresponding to a relative poverty rate of 16.13%. After the simulation, we observe no difference in the poverty incidence, due to two factors: The poverty threshold also moves up as a result of the generation

<sup>40</sup> Our findings for the case of Turkey are parallel to the case of the US, where men with a high school diploma working in construction earn more than women with a high school diploma working in education, and wages are lower for preschool jobs than in other levels of education (see Antonopoulos et al. 2010).

TABLE 13: COMPARISON OF EARNINGS BY GENDER AND SECTOR (ANNUAL EARNINGS IN TRY)

Mean individual earnings of existing workers*									
	Education			Construction			Education vs. Construction		
	Men	Women	Gender gap	Men	Women	Gender gap	Men in Educ.n vs. Constr.n	Women in Educ.n vs. Constr.n	Women in Educ.n vs. Men in Constr.n
Secondary or less	12,182	7,150	0.59	9,297	3,417	0.37	1.31	2.09	0.77
High school	13,239	8,693	0.66	13,854	11,518	0.83	0.96	0.75	0.63
College or higher	23,289	18,050	0.78	26,669	11,000	0.41	0.87	1.64	0.68
Median individual earnings of existing workers*									
	Men	Women	Gender gap	Men	Women	Gender gap	Men in Educ.n vs. Constr.n	Women in Educ.n vs. Constr.n	Women in Educ.n vs. Men in Constr.n
	Secondary or less	9,694	7,200	0.74	7,300	3,750	0.51	1.33	1.92
High school	14,424	8,376	0.58	8,400	11,580	1.38	1.72	0.72	1
College or higher	22,960	20,450	0.89	17,975	12,000	0.67	1.28	1.7	1.14
Mean individual earnings of job recipients in ECCPE and construction sectors**									
	Men	Women	Gender gap	Men	Women	Gender gap	Men in Educ.n vs. Constr.n	Women in Educ.n vs. Constr.n	Women in Educ.n vs. Men in Constr.n
	Secondary or less	8,400	3,546	0.42	7,048			1.19	
High school	14,726	6,385	0.43	7,077			2.08		0.90
College or higher	14,646	17,027	1.16	38,905			0.38		0.44
Median individual earnings of job recipients in synthetic education and construction sectors**									
	Men	Women	Gender gap	Men	Women	Gender gap	Men in Educ.n vs. Constr.n	Women in Educ.n vs. Constr.n	Women in Educ.n vs. Men in Constr.n
	Secondary or less	8,400	2,100	0.25	6,000			1.40	
High school	16,160	4,800	0.3	7,200			2.24		0.67
College or higher	16,500	19,440	1.18	18,000			0.92		1.08

\* Authors' calculations based on SILC 2011.

\*\* Authors' calculations based on synthetic sector simulation results. Earnings for women in synthetic sector are not reported due to insufficient observations by education level.

of a substantial number of jobs and the consequent income enhancement by our hypothetical ECCPE expansion. Moreover, only a minority of the new jobs generated through the ECCPE expansion are assigned to people who fall below the poverty threshold. This is due to the relatively higher skills requirement in the ECCPE sector as compared to, for example, construction. As the discussion of the profile of job recipients has shown above (Table 11), only 19% of the jobs generated through an expansion of ECCPE go to workers with less than a secondary education, versus 68% of the jobs generated through construction. As

a result, 11% of the job recipients in the ECCPE case were shown to be in the lowest income quintile, versus 49% of the job recipients in the case of construction.

Using a fixed poverty threshold, we are able to isolate the impact net of an upward-moving median income. In this case, we observe that approximately 92,000 people (including approximately 25,000 job recipients) are able to move above the poverty threshold. The poverty rate shows a marginal decrease, from 16.13% to 15.96%.

TABLE 14: POVERTY IMPACT THROUGH LABOR DEMAND

ECCPE					
All		Nonpoor	Poor	Total	Poverty rate (%)
Relative poverty line	Before	60,696,104	11,670,282	72,366,386	16.13
	After	60,693,107	11,673,279	72,366,386	16.13
	Difference	2,997	2,997		0
Fixed poverty line	After	60,816,792	11,549,594	72,366,386	15.96
	Difference	120,688	120,688		0.17
Job recipients only					
		Nonpoor	Poor	Total	
Relative poverty line	Before	668,896	49,797	718,693	6.93
	After	693,626	25,067	718,693	3.49
	Difference	24,730	-24,730		-3.44
Fixed poverty line	After	695,733	22,960	718,693	3.19
	Difference	26,837	-26,837		-3.74
CONSTRUCTION					
All		Nonpoor	Poor	Total	Poverty rate (%)
Relative poverty line	Before	60,696,104	11,670,282	72,366,386	16.13
	After	60,947,744	11,418,642	72,366,386	15.78
	Difference	251,640	-251,640		-0.35
Fixed poverty line	After	61,062,614	11,303,772		15.62
	Difference	366,510	-366,510		-0.52
Job recipients only					
		Nonpoor	Poor	Total	
Relative poverty line	Before	197,451	92,356	289,807	31.87
	After	270,349	19,458	289,807	6.71
	Difference	72,898	-72,898		-25.16
Fixed poverty line	After	271,418	18,389		6.35
	Difference	73,967	-73,967		-25.52

Source: Authors' calculations.

In the case of construction, out of the 289,807 new jobs generated, 92,356 go to workers who are below the poverty line. Of these workers, 72,898 move out of poverty and 19,458 continue to remain poor despite now having a paid job. In terms of the overall population, the number of poor decreases to 11,418,642 (down by 251,640 people) and the poverty rate falls

from 16.13% to 15.78%. Using a fixed poverty threshold, the impact is more pronounced: the number of poor drops by 366,510 people and the poverty rate decreases to 15.62%.

When the impact of an ECCPE expansion on poverty alleviation is evaluated from the demand side (i.e.,

job creation), it does not seem to perform better than construction. On the contrary, construction seems to have a more pronounced impact, since more of the new jobs generated through a hypothetical expansion go to workers below the poverty line. In order to be able to present a more comprehensive evaluation of the comparative poverty alleviation impacts, we need to consider also the labor-supply effects inherent in an ECCPE expansion but absent in the case of construction. The availability and accessibility of child-care centers and preschools is expected to relieve some of the constraints particular to female labor supply, enhancing women's labor force participation rates. Hence, an ECCPE expansion is likely to produce an impact on poverty through positive labor-supply effects as well. As discussed in section III above, social care service expansion is a potential antipoverty strategy that also works by encouraging dual-earner households rather than single-male-breadwinner households and enabling the employment of mothers/fathers in single-parent households. Next, we turn to an estimation of the potential poverty alleviation impact of an ECCPE expansion as a result of above-mentioned labor supply effects.

### IMPACT ON POVERTY THROUGH LABOR SUPPLY EFFECTS

We estimate the supply-side impact of an ECCPE expansion on poverty by identifying those women in our pool of *potential* job recipients who are below the poverty line and who are mothers of small children under age 6. As was explained in the above discussion, our pool of employable people is identified by the following criteria: those who are unemployed (looking for a job and ready to start work), those who are out of the labor force in the 20–65 age group, and those with no health or disability restriction. These criteria yield 16.8 million employable people, of whom 14.3 million are women. Of these, 13.2 million women report engagement in full-time domestic work as the reason for not participating in the labor market and 4.1 million are mothers of children under age 6. Of these 4.1 million, almost half (49%) have previous work experience, and 27% report having worked as a regular employee on their last job.

Of the 4.1 million mothers of children under age 6 in our pool of employable people, 793,366 are below the relative poverty line, and they do not receive a job in our simulation. We assume that out of this smaller pool of employable poor mothers of young children,

those who are most likely to enter the labor market, once their child-care burden is relieved, are prime-working-age mothers (age 25–40) with previous work experience. This amounts to 181,549 women. Assuming away any labor-demand shortages, we impute the most likely industries, occupations, and work hours for their employment, and the wages they are likely to earn at observed labor market rates. The results presented in Table 15 indicate that out of the 181,549 job recipients, 152,257 are estimated to move out of poverty. Since these job recipients also lift the members of their household out of poverty, this translates into a total of 821,347 people moving out of poverty, of which 437,615 are children under age 15.<sup>41</sup> This results in a decline of poverty from 16.13% to 14.99% using a relative poverty line, and to 14.71% using a fixed poverty line.

Figure 17 presents a comparison of the poverty-alleviation impact of an ECCPE expansion and a construction boom through labor-demand and labor-supply effects. While public spending to expand labor demand in construction has a relatively more pronounced effect on poverty reduction when considering the labor demand effects only (a 0.35 to 0.42 percentage point reduction in poverty by construction-generated jobs versus a 0.17 percentage-point reduction in poverty through ECCPE-generated jobs), ECCPE's performance is far superior when labor-supply effects are also taken into consideration as it has the potential to decrease the relative poverty rate by 1.14 percentage point (a 1.42 percentage point reduction in the case of a fixed poverty line). Hence a targeted ECCPE expansion, whereby new places in child-care centers and preschools are created for the young children of women below the poverty line, has the potential to result in substantial poverty alleviation along with gender equality.

<sup>41</sup> The average household size for these 181,549 job-recipient poor mothers is 5.99 people per household.

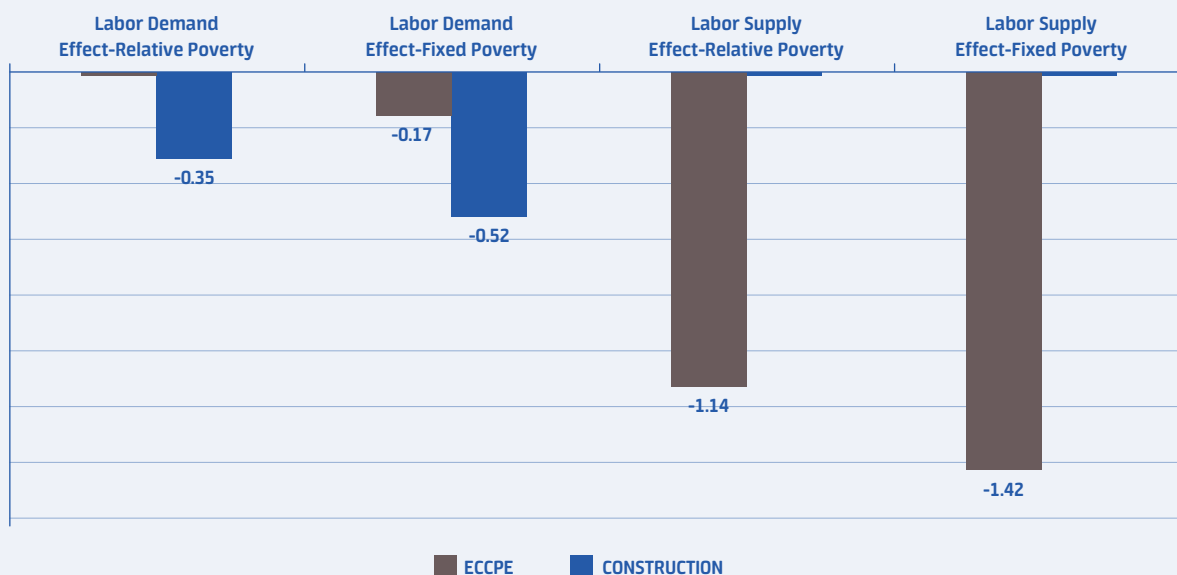


**TABLE 15: POVERTY IMPACT THROUGH (FEMALE) LABOR SUPPLY**

ALL					
		Nonpoor	Poor	Total	Poverty rate (%)
Relative poverty line	Before	60,696,104	11,670,282	72,366,386	16.13
	After	61,517,451	10,848,935	72,366,386	14.99
	Difference	821,347	-821,347		-1.14
Fixed poverty line	After	61,721,587	10,644,799	72,366,386	14.71
	Difference	1,025,483	-1,025,483		-1.42
JOB RECIPIENTS ONLY					
		Nonpoor	Poor	Total	Poverty rate (%)
Relative poverty line	Before	--	181,549	181,549	100
	After	152,257	29,292	181,549	16.13
	Difference	--			-83.87
Fixed poverty line	After	175,314	6,235	181,549	3.43
	Difference	--			-96.57

Source: Authors' calculations.

**FIGURE 17: POVERTY ALLEVIATION BY LABOR DEMAND AND LABOR SUPPLY EFFECTS: ECCPE VERSUS CONSTRUCTION (CHANGE IN THE POVERTY RATE IN PERCENTAGE POINTS)**



Source: Authors' calculations.

## ► VII. SHORT-RUN FISCAL SUSTAINABILITY OF AN ECCPE EXPANSION

The fiscal sustainability of an ECCPE expansion through public provisioning is one of the primary questions of interest. We must note that there is a long-run sustainability effect through human capital returns. Our discussion in section II above has shown that there is a rising number of recent empirical studies which show that enrollment in child-care centers and preschool education institutions yields higher productivity and higher returns (formalized in terms of higher future earnings) as compared to investments in later stages of schooling (Conti and Heckman 2012). These associated human capital-enhancement effects of ECCPE establish a reference point for evaluating the long-term fiscal sustainability of public investment in ECCPE services.

The short-run fiscal sustainability, on the other hand, could be explored in terms of the estimated increase in tax income of the government as a ratio of the required public expenditures for an ECCPE or construction expansion. We undertake this estimation by calculating the income tax and social security contributions of newly employed persons (i.e. the job recipients). Personal income information in SILC 2011 is the net of individual income tax, stamp tax, and employees' contributions to social security from gross income. There are four progressive income tax rates based on the taxable income, which is gross income minus social security contribution. It is necessary to reconstruct gross income using all the relevant information in order to estimate the fiscal impact of our scenarios.

First, we calculate a standard deduction, called the Minimum Living Allowance (MLA), as a percentage of a minimum gross wage.<sup>42</sup> The percentage of the allowance is determined by a formula: 50% for the taxpayer, 10% for the married spouse without employment, 7.5% each for the first two dependent children under age 18, and 5% for each additional dependent child. All of the percentages are summed to the household level to determine the proportion of the MLA as a tax credit for each person with income. We also use the fact that taxable income is gross

income minus the employee's contribution to social security. Then we can calculate the gross income and applicable tax rates at an upper bound for each income tax bracket.<sup>43</sup> With the information at the upper and lower bound, it is possible to arrive at the gross income and imputed income tax payment of all individuals with income. (Note that a tax deduction for disabled persons is not part of this calculation, due to lack of information on the degree of disablement in the data.)

Before we impute the social security contribution, it is necessary to impute two employment conditions: whether the employed person is registered for social security benefits and whether she is given a permanent or limited-time contract, or none at all. Only registered employees with a contract pay the contributions as well as income taxes, while nonregistered employees pay only income taxes. A probit regression is used to predict the registration status of those who are assigned a job in the simulation. The independent variables are age, gender, education, urban/rural, region, class of worker, assigned industry, and occupation. A multinomial logistic regression is used to predict the probability of each of four types of employment: permanent contract of unlimited duration, temporary contract of limited duration, occasional work without a contract, or temporary work held by students. Then the most likely employment type is selected for the job recipients in the simulation. The independent variables are the same as those in the probit regression. With this information in hand, we impute the employees' contributions to social security among the registered workers and the income tax payment for those who are employed. Employers' contributions are calculated using a fixed ratio of employers' to employee's contributions (16.5%/15%).

The results of the probit regression indicate that 85.4% of the new jobs generated through an ECCPE expansion would be registered under social security, versus 30.2% of the new jobs generated through construction. As far as the contract type is concerned, 83.4% of the new jobs generated through an ECCPE

<sup>42</sup> The minimum gross wage in 2010 (which is the reference year for income data in SILC 2011) is 744.75 TRY per month.

<sup>43</sup> The upper bound of each income tax bracket in 2010 is 8,800, 22,000, and 50,000 TRY, respectively.

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expansion would be jobs with a permanent contract of unlimited duration; 10.5% would entail a temporary contract of limited duration; and 6.1% would be occasional jobs without a contract. In the case of construction, by contrast, only 24.6% of the new jobs would be jobs with a permanent contract of unlimited duration; 11.3% would entail a temporary contract of limited duration; and 64.1% would be occasional jobs without a contract.

Our estimations of the increase in government tax revenues under the two scenarios of an ECCPE versus a construction expansion are presented in Table 16. Under the ECCPE expansion, there is an increase of

8.8 billion TRY in total social security contributions paid by employees and employers. The increase in receipts from individual income tax payments is 6.5 billion TRY and from value-added tax from additional household final demand is 153.7 million TRY. This is a total increase of 15.7 billion TRY in government revenue as a result of an ECCPE expansion and the consequent generation of direct and indirect jobs, and increased household income. Hence, as much as 77% of the total expenditure of 20.5 billion TRY on ECCPE toward a target rate of OECD average enrollment rates is estimated to be covered in the short run by increased government tax revenue.

**TABLE 16: FISCAL IMPACT**

		ECCPE				CONSTRUCTION			
		Total	Std. Err.	[95% Conf. Interval]	Increase in Gov.t Revenue (TRY)	Total	Std. Err.	[95% Conf. Interval]	Increase in Gov.t Revenue (TRY)
Social security employee contributions	Before	2.69E+10	7210194	2.68E+10	2.69E+10	2.69E+10	7015605	2.69E+10	2.69E+10
	After	3.11E+10	6868701	3.11E+10	3.12E+10	4,200,000,000	2.95E+10	6732795	2.95E+10
Social security employer contribution	Before	2.96E+10				2.96E+10			
	After	3.42E+10			4,620,000,000	3.25E+10			2,860,000,000
<b>TOTAL</b>					<b>8,820,000,000</b>	<b>5,460,000,000</b>			
		Total	Std. Err.	[95% Conf. Interval]					
Ind.I Income tax	Before	3.99E+10	1.70E+07	3.99E+10	4.00E+10				
	After	4.64E+10	1.70E+07	4.64E+10	4.65E+10	6,500,000,000	5,200,000,000		
		Total	Std. Err.	[95% Conf. Interval]					
<b>HH income</b>									
	Before	2.41E+11	5.47E+07	2.41E+11	2.41E+11				
	After	2.43E+11	5.49E+07	2.43E+11	2.43E+11				
VA from add.I HH final demand		average VAT in HH Final Demand	0.07683334		153,666,671	76,833,335			
<b>TOTAL</b>					<b>15,673,666,671</b>	<b>10,736,833,335</b>			

Source: Authors' calculations.

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In the case of construction, there is an increase of 5.5 billion TRY in social security contributions paid by employees and employers. The increase in receipts from individual income tax payments is 5.2 billion TRY and from value-added tax from additional household final demand is 76.8 million TRY. These amount to a total increase of 10.7 billion TRY in government revenue as a result of an ECCPE expansion and the resulting generation of direct and indirect jobs, and increased household income. This means 52% of the total expenditures of 20.5 billion TRY on physical infrastructure are estimated to be covered in the short run through an increase in government tax revenue. Hence, ECCPE can be said to perform better than our reference sector of construction in terms of short-run fiscal sustainability as well. These results derive from the larger number of jobs generated, as well as the much higher rate of social security-covered permanent jobs in ECCPE, despite the higher wage rates observed in construction.

## ► VIII. CONCLUSIONS

The findings of this research carry a number of policy implications not only for the national context in Turkey but also for the regional and international debates on inclusive growth, macroeconomic policy, and gender equality.

As far as the Turkish context is concerned, the background discussions in sections III and IV have shown that in recent years there has been a proliferation of policy debates and initiatives on social care expansion, with a particular focus on child care and preschool education. The main proponents on the government side have been the MFSP, MoL, and MoE. The MSFP and MoL approach the issue from the perspective of women's employment, but with little attention paid to the child development perspective. As an outcome of this exclusive focus, policy initiatives have been focused on conditional subsidies based on women's employment status. The inherent complication in designing social care expansion through subsidies conditional on women's employment, rather than a universal expansion, is that it may result in triggering further inequality of opportunity among children and households by socioeconomic status. Relatively more educated/skilled mothers, living in regions with better labor market conditions and hence with higher chances of finding a job, are likely to be the recipients of these subsidies. This would lead to an unintended consequence in which children from relatively higher-income households would benefit from ECCPE services.

The MoE initiatives, on the other hand, have approached the issue from a child development perspective, limited thus far to nursery classes and devoid of a gender perspective. As noted in the above discussion, even if preschool education is universalized for children age 5 (or age 4 as targeted in the MoE strategy documents), the impact on women's employment is likely to be very limited. Hence, there is a need to pool these parallel initiatives to expand ECCPE into a coherent national strategy with an ultimate policy target of universal access, and simultaneously adopt the mutually reinforcing policy objectives of children's well-being and gender equality.

The main obstacle in policymakers' perception of committing to universal access to ECCPE is the

problem of resources. While acknowledging the problem of a lack of social care services, an ongoing element in the recent debates has been how to resolve the issue in as low cost a way as possible. Community-based child development programs of limited duration and part-time access, local women-run centers, extended-care leave combined with home-based, part-time work for mothers, and an ECCPE expansion limited to upper age groups present different ramifications in the search for a low-cost solution. As discussed earlier, these low-cost strategies are likely neither to offer satisfying solutions to women's care burden nor to constitute an effective and sustainable national child development program. The foregoing discussions have implied throughout that the problem of resources is actually a question of fiscal priorities. The findings in this report represent substantial evidence for justifying a prioritization of ECCPE—or, more generally, social care services—in fiscal policy. The simulations show that overwhelmingly favorable employment-generation, gender-equality, and poverty-alleviation effects establish a solid economic rationale for an ECCPE expansion toward an ultimate target of universal access. Such a strategy also entails a strong child development perspective.

On a more concrete basis, an immediate starting point could be a targeted expansion for children from lower-income households, while simultaneously directing part of the emerging job opportunities to women with lower skills. As part of the active labor market programs, primary or secondary school graduates could receive training in service jobs such as cooking and cleaning, and high school graduates could be trained in comprehensive certificate programs to work as teacher aides.

Beyond the national context, an increasing number of research studies and policy documents at the international and regional levels point to the critical role that social care infrastructure can play in promoting inclusive growth and enhancing gender and class equality. A recent Beijing +20 regional assessment by the United Nations Economic Commission for Europe (UNECE) on economic and social measures to support women's empowerment in the UNECE region points to the important role of policies to decrease the burden of care responsibilities on women, and in particular emphasizes "affordable,

good quality childcare facilities” as “the most effective way” to increase female employment levels in the region (UNECE 2014). The report simultaneously underlines the need for gender-sensitive fiscal policies and recommends the following:

*Policy-makers must consider the gender impact of austerity measures to avoid exacerbating inequalities. Stimulatory spending must not only target male-dominated sectors such as construction or infrastructure. This would enable women to benefit from the resulting job creation as well. (p. 29)*

This study provides concrete evidence on how gender-sensitive fiscal policies regarding the reallocation of public spending across sectors has important ramifications in terms of who benefits from job creation. Beyond “who” benefits, this report also presents a comparative analysis of “how much and what kind of” benefits can be expected from a fixed amount of gender-sensitive public spending versus gender-blind spending. Our findings show that supporting an ECCPE expansion would generate many more jobs in total and, specifically, many more jobs for women than physical infrastructure and construction; nonetheless, it would still generate a substantial number of jobs for men. These jobs are also of higher quality: a significant number of them go to lower-skilled job recipients from households from the bottom 40% of the income distribution, and to unemployed workers. Finally, the combined labor demand and supply impact of an ECCPE expansion on poverty alleviation is far superior to that of a construction boom, by simultaneously creating pro-women employment demand, raising female labor supply, and bolstering dual-earner households. Hence, gender-sensitive fiscal policy is good not only for women but also for men, the unemployed, the low-skilled, and the poor.

In this analysis we have only looked at ECCPE as a subsector of SCS. It should be noted, however, that there are other subsectors of SCS for the elderly, the disabled, and the sick, where there is ample space for growth and employment generation. It is also highly likely that public investments in these other subsectors of social care will generate relatively more jobs for low-skilled workers from households in the bottom income distribution quintiles, given the relatively lower skill requirements as compared to ECCPE. Hence, the demand-side effects of public investment in social care services for the elderly, the

disabled, and the sick on poverty alleviation could be more substantial than in the case of ECCPE.

We should note that the income distributional effects of the new jobs carry an additional gendered welfare implication beyond poverty alleviation. A redistribution of income in favor of women is also likely to transform consumer spending patterns in favor of community and household welfare. Recent gender economics research has shown that women tend to spend more of their income on household welfare-enhancing items such as health and education services, and better and more food and housing, while men tend to spend more on personal consumption items such as automobiles, alcohol, and tobacco. Hence, a gender-sensitive fiscal policy prioritizing social care has the potential to produce additional positive externalities through changing consumption patterns.<sup>44</sup>

Beyond the long-term effects of public investment in ECCPE on human capital—eliminating socioeconomic inequalities and enhancing labor productivity—this study has shown that even in the short term, the labor demand-driven equality and poverty impact compare favorably as a target for fiscal prioritization. The perception of public expenditure on social care service provisioning as a productive investment that pays off in a multitude of ways, both in the short and long runs, might change the debate on fiscal policy and the dominant inclination toward expenditure restraint across the board. Social care investments embedded in an active growth and employment-promoting strategy have the potential to produce substantial returns.

A future research agenda would entail the development of an economic model to incorporate the multiple effects of a universal social care infrastructure: job creation, poverty alleviation, labor force participation, gender equality, changing consumption patterns, improved human capital and labor productivity, and equality of opportunity for children over the long run.

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44 We are grateful to Prof. Dr. Nilüfer Çağatay of the University of Utah for this insight.

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## ► APPENDIX I. FIELD SURVEY ON KINDERGARTEN, NURSERY, AND DAY-CARE CENTER COST STRUCTURE

The Field Survey on Kindergarten, Nursery, and Day-care Center Cost Structure has been conducted to integrate the input composition of the ECCPE sector into the I-O tables provided by the World Input-Output Database (WIOD) for Turkey. Face-to-face interviews have been carried out with representatives of 77 private and 25 public institutions in 12 districts of Istanbul.<sup>45</sup> Of the interviews with private centers, 58.4% were carried out with owners/partners of the institution. The rest of the interviews in the private institutions (41.6%) were held with administrative personnel. In public centers, all the interviews were carried out with administrative personnel, 92% of which were with principals, managers, or deputy managers (see Table A1.1).

**TABLE A1.1: TITLES OF THE REPRESENTATIVES SURVEYED (%)**

	Private	Public	Total
Owner/partner	58.4	0.0	44.1
Finance manager/purchasing manager/accountant	3.9	8.0	4.9
Principal/manager/deputy manager	37.7	92.0	51.0
Base	77	25	102

**TABLE A1.2: AVERAGE NUMBER OF EMPLOYEES BY PERSONNEL TYPE**

	Private	Public	Total
Teacher/instructor/group director	4.7	9.5	5.9
Babysitter/class assistant	2.4	2.0	2.3
Service personnel (kitchen/cleaning/security/etc.)	1.9	2.8	2.1
Principal/manager/deputy manager	1.2	1.7	1.3
Other administrative personnel (Finance Manager/accountant/secretary etc.)	0.7	0.8	0.7
Total number of employees	10.9	16.8	12.3
Base	77	25	102

Table A1.2 shows the number of employees per institution by personnel type. According to the survey, the average number of employees per institution in private and public centers is 10.9 and 16.8, respectively. Most of the difference between the average number of employees in private and public centers can be attributed to the gap between the average number of teachers/instructors/group directors in private and public institutions. The difference between the average number of service personnel in private and public ECCPE centers is also noteworthy.

Tables A1.3 and A1.4 provide information about the difficulties observed by ECCPE centers in finding employees by personnel type. The field survey results reveal that, in public ECCPE institutions, no major difficulties take place in finding personnel. Only 12% of the respondents reported difficulties in finding service personnel and 8% in teachers, instructors, and group directors. Besides, in private centers, 53.3% of the respondents (41 out of 77) indicated that they encounter difficulties in finding teachers, instructors, and group directors. Percentage of private center representatives who reported difficulty in finding service personnel and babysitters/class assistants are 24.7 and 19.5, respectively.

**TABLE A1.3: DIFFICULTIES IN FINDING EMPLOYEES BY PERSONNEL TYPE (%)**

	Private		Public		Total	
	Yes	No	Yes	No	Yes	No
Teacher/instructor/group director	53.3	46.7	8.0	92.0	42.2	57.8
Babysitter/class assistant	19.5	80.5	0	100	14.7	85.3
Service personnel	24.7	75.3	12.0	88.0	21.6	78.4
Principal/manager/deputy manager	9.1	90.9	4.0	96.0	7.8	92.2
Other administrative personnel	5.2	94.8	0	100	3.9	96.1
Other personnel	2.6	97.4	0	100	2.0	98.0
Base		77		25		102

<sup>45</sup> These districts are Ataşehir, Bağcılar, Bakırköy, Beşiktaş, Beykoz, Büyükdere, Kadıköy, Küçükçekmece, Pendik, Sarıyer, Ümraniye, and Üsküdar.

**TABLE A1.4: REASON OF DIFFICULTY IN FINDING EMPLOYEES IN PRIVATE INSTITUTIONS (%)**

	Not enough applicants	Not enough qualified applicants	Qualified applicants are not satisfied with the conditions	Base
Teacher/instructor/group director	2.4	70.7	34.2	41
Babysitter/class assistant	6.7	80.0	33.3	15
Service personnel	10.5	79.0	31.6	19
Principal/Manager/Deputy manager	0	100	28.6	7
Other administrative personnel	0	100	0	4
Other personnel	0	100	0	2

Table A1.4 shows that the majority of the private center representatives do not report difficulties in ensuring a sufficient number of candidates. However, when it comes to ensuring a sufficient number of qualified applicants, for most of the positions if not all, respondents indicate that they observe difficulties. For example, of the private center representatives who reported difficulties in recruiting service personnel, 79.0% indicated that applicants to these positions are not qualified enough. A second major problem is that qualified applicants are not necessarily satisfied with the working conditions (i.e., contracts, salaries, hours, and holidays). For example, 34.2% of the private center representatives who reported difficulties in recruiting teachers, instructors, and group directors indicated that qualified applicants are not satisfied with the working conditions.

**TABLE A1.5: NUMBER OF ENROLLED CHILDREN BY AGE GROUPS**

	Private	Public	Total
12 to 24 months	0.5	0	0.3
24 to 36 months	5	0	3.8
36 to 48 months	16.8	33.3	20.8
48 to 60 months	16	60.1	26.8
60 to 72 months	8.5	70.8	23.8
More than 72 months	0.2	0.7	0.3
Total	46.9	164.9	75.9
Base	77	25	102

Table A1.5 provides information about the number of enrolled children per institution by age group. According to the field survey, the average number of children enrolled in private and public institutions are 46.9 and 164.9, respectively. Study results confirm that almost no ECCPE services are provided for children under 2. In private ECCPE centers, enrollment of children 3 years old is quite common (i.e., more than one-third of the children belong to the 36-to-48-month-old group). On the other hand, in public schools, only one-fifth of the enrolled children belong to this group. In public centers, most of the ECCPE services are devoted to children 4 to 6 years old.

**TABLE A1.6: DEMAND AND CAPACITY OF THE INSTITUTION (%)**

	Private	Public	Total
Demand is lower than capacity	63.6	28.0	54.9
Demand exceeds capacity	9.1	20.0	11.8
Demand is at the level of capacity	27.3	52.0	33.3
Base	77	25	102

In the field survey, the representatives are asked to compare the actual enrollment level with the capacity of ECCPE center. Table A6 briefly demonstrates this comparison. Based on the declarations of the representatives, in 63.6% of the private centers, the demand is lower than the capacity. In other words, only 36.4% of private centers operate at full pupil capacity. On the other hand, in public ECCPE centers, the share of institutions that are operating at less than full capacity is 28%.

**TABLE A1.7: AVERAGE AREA OF INDOOR AND OPEN-AIR SPACES PER INSTITUTION (M<sup>2</sup>)**

	Private	Public	Total
Indoor	422	844	526
Open air	326	1,292	563
Base	77	25	102

Table A1.7 provides information about the area of indoor and open-air spaces in private and public ECCPE centers. According to the survey results, public institutions have twice as much indoor area and four times as much open-air space as private centers do. On the other hand, when the number of pupils is

considered, private centers offer more indoor space per child (9 m<sup>2</sup>) than public centers do (5.12 m<sup>2</sup>). Yet public centers still provide more outdoor area per child (7.84 m<sup>2</sup>) than private institutions do (6.95 m<sup>2</sup>). It should be remembered that private centers are operating under capacity.

Table A1.8 shows the annual fee/parental contribution per pupil (TRY) in private and public institutions. According to the survey, the average annual fee in private ECCPE centers is 8129 TRY. State-run ECCPE centers in Turkey charge no tuition fee. However, most of these centers receive parental contributions for expenses like meals, transportation, etc. Survey results show that the amount of the parental contribution per child in public ECCPE institutions is 1,029 TRY.

**TABLE A1.8: ANNUAL FEE/PARENTAL CONTRIBUTION PER CHILD (TRY)**

	Amount	Base
Private	8,129	77
Public	1,029	25

Table A1.9 shows the distribution of private and public ECCPE centers' annual expenses. During the interviews, the representatives are asked to give the percentage share of each item in total annual expenses for 2014. The items in the list are grouped in accordance with the WIOD sector structure. Results reveal that, in both private and public centers, the largest item in the annual budget is personnel expenses. Of the total annual expenses, personnel costs account for 31.8% in private centers<sup>46</sup> and 30.8% in public centers. Public ECCPE centers do not pay for rent. Yet, in private institutions, rental costs are the second-largest item in the annual budget, with a share of 20.1%. The share of utility and food expenses is relatively higher in public institutions than in private ones. This can be explained by the difference between the number of students enrolled in public (164.9) and private (46.9) institutions. Building repair and maintenance, stationery, cleaning and chemistry products, and furniture and toys are the next-largest items in both public and private institutions' budgets, with minor rank differences.

<sup>46</sup> This figure is in line with the share of personnel costs figure (31.1%) reported by the survey of the World Bank and MFSP for private centers. This survey was conducted in five Turkish provinces (Istanbul, Eskişehir, Denizli, Gaziantep, and Sam-sun) on a set of 603 ECCPE centers, 163 of which were private institutions.

**TABLE A1.9: ANNUAL EXPENSES BY MAJOR ITEM (%)**

	Private	Public	Total
Rent	20.1	0	15.2
Electricity, gas, and water	9.3	24.7	13.1
Personnel	31.8	30.8	31.6
Food	11.3	20.7	13.6
Catering	0.3	2.3	0.8
Post and telecommunication	1.8	1.0	1.6
Business expenses	2.5	0.7	2.1
Transportation	1.0	0.1	0.8
Stationery	3.7	3.2	3.6
Cleaning and chemistry products	3.5	4.5	3.7
White goods and electronic products	0.6	0.1	0.5
Furniture and toys	2.6	3.8	2.9
Other manufactured products	0.6	1.6	0.9
Publishing and printing	1.2	0.2	1.0
Education	1.2	0.2	1.0
Health	0.3	0.1	0.2
Financial intermediary	1.1	0.3	0.9
Repair and maintenance of building	4.7	5.5	4.9
Construction	0.6	0.1	0.5
Other expenses	1.6	0.0	1.2
Base	77	25	102

Table A1.10 provides information about the total annual expenditures and per-child costs of private and public ECCPE centers. During the interviews, the respondents are asked either to give an exact amount of or, if they do not prefer to do so, to provide an interval that contains the total annual expenses of the institutions they represent. According to the results, annual total expenditure per institution is 309,798 TRY in private ECCPE centers, compared to 161,998 TRY in their public counterparts. Survey results also reveal that per-child costs for private and public centers are 7,378 TRY and 943 TRY, respectively.

**TABLE A1.10: ANNUAL EXPENSES AND PER-CHILD COSTS (TRY)**

	Private	Public	Total
Annual expense per institution	309,798	161,998	253,780
Annual per-child cost	7,378	943	4,554

## ► APPENDIX II. COMPARISON OF INPUT-OUTPUT EMPLOYMENT-GENERATION RESULTS FOR AGGREGATED SECTORS

Table A3.1 shows a comparison of the industrial distribution of jobs created by an injection of 20.732 billion TRY (9.49 billion USD) if we were not to use a synthetic sector approach and instead use the two sectors that entail child-care centers and preschools (namely, education sector and health and social services).

Accordingly, this volume of expenditure would generate 367,000 additional jobs if spent in the education sector, and 6% more jobs (389,000) in the health and social services sector. As noted before, the same injection would create 719,000 new jobs if made into the ECCPE services.

As for the breakdown of these jobs by industries, 10.3% of the new jobs generated by an injection into the education sector (37,794 out of 366,564) would be in other sectors. Besides, 22.2% of the jobs generated via the health and social services sector (86,453 jobs out of 389,187) would be indirect. It should be noted that the ratio of the indirect jobs generated via ECCPE services was 14.9% (107,307 jobs in absolute terms).

**TABLE A3.1: DISTRIBUTION OF JOBS CREATED BY 20.732 BILLION TRY INJECTION (BY INDUSTRY)**

	ECCPE (Synthetic Sector)	Education	Health and Social Work
Agriculture, forestry, and fishing	19,797	2,299	9,835
Mining and quarrying	926	441	694
Manufacturing	21,813	6,239	14,223
Electricity, gas and water supply	3,939	881	1,151
Construction	12,525	501	1,271
Wholesale and retail trade; repair of motor vehicles and motorcycles	18,340	7,299	18,868
Hotels and restaurants	1,739	1,527	2,406
Transportation, storage, communications	6,513	2,419	7,193
Financial intermediation	1,616	1,019	1,412
Real estate, renting, and business activities	13,560	13,236	19,964
Public administration and defense; compulsory social security	39	203	255
Education	4,484	328,770	6,433
Health and social work activities	1,110	480	302,704
Other community, social, and personal services	907	1,249	2,779
Activities of households as employers	0	0	0
ECCPE	611,386	0	0
<b>Total</b>	<b>718,693</b>	<b>366,564</b>	<b>389,187</b>

## ► APPENDIX III. WORLD INPUT-OUTPUT DATABASE (WIOD) AND TURKISH INPUT-OUTPUT TABLES

The World Input-Output Database (WIOD) combines time series of world input-output tables (WIODs) for 40 economies and a model for the rest, for the period 1995–2011. The database is constructed using official input-output tables (IOTs) in conjunction with national accounts (NAs) and international trade statistics. The national input-output tables (NIOTs) section, one of the major components of the WIOD, contains the individual IOTs for 27 EU countries and 13 other major countries including Turkey, in current prices, expressed in millions of US dollars (WIOD 2015; Timmer et al. 2015).

In the WIOD, for each country, IOTs are constructed to reflect how much of each of 59 products is produced and used by each of 35 industries. In order to arrive at a time series of the IOTs, a method is formulated to estimate the supply and use tables (SUTs) for nonbenchmark years as well. Series for output and value added by industry, imports and exports, and final use by use category were taken from the NAs and used as constraints when generating time series of SUTs with the method called SUT-RAS (Dietzenbacher et al. 2013).

Standard input-output estimation techniques require the availability of total outputs by product for the projection years. This condition is often not met in practice. The SUT-RAS technique does not require this condition to hold, and jointly estimates SUTs that are immediately consistent. The method is applicable to different settings of SUTs in which use tables are separated into domestic and imported uses (Temurshoev and Timmer 2011). The technical details of (a) harmonization and standardization of the published SUTs across countries and time, (b) benchmarking the harmonized national SUTs to NAs, and (c) building a time series of national SUTs in the WIOD can be found in Dietzenbacher et al. (2013).

In the construction of the time series for Turkish IOTs, two benchmark tables available for the years 1996 and 2002 and one additional table available for 1998 were used. The SUTs were obtained from Turkstat. SUTs were available in basic and purchasers' prices for 1998 and 2002. As Turkish data was available in ISIC rev.3.1, the aggregation of products to WIOD products and of

industries to WIOD industries could be accomplished directly. Also, trade and transport margins, taxes on production, and taxes on products were separately available in 1998 and 2002 tables (Erumban et al. 2012).

Time series (1998–2011) on sectoral GDP, output, and expenditure components of GDP were based on the NAs available from Turkstat. Data on rest-of-the-world adjustment were taken from OECD NAs. For the years prior to 1998, the series were extrapolated using the growth rate of an earlier, 1987 series. Whenever WIOD industry classification was not sufficiently matched distributions from other sources (annual business surveys or IOTs) were used. In the case of Turkey, imports and exports by product in US dollars were available from Turkstat trade data. Product shares from the trade data were applied to total imports and exports data provided by NAs. Time series were projected using interpolated margins/output ratios from the benchmark supply tables. For nonbenchmark years, ratios from other years were used (e.g., the average of 1998 and 2002 for 1999–2001 and the ratio of 2002 for all years after 2002). These ratios were then applied to output series of the relevant margin industry, to derive annual margins (Erumban et al. 2012).

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## ► ISTANBUL TECHNICAL UNIVERSITY WOMEN'S STUDIES CENTER ([www.kaum.itu.edu.tr](http://www.kaum.itu.edu.tr))

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engages in advocacy and networking for improved gender equality in higher education, and hosts the ITU Commission for Prevention of Sexual Abuse and Gender Discrimination. The Center is also an active participant of the national interuniversity CTS network on elimination of sexual abuse and violence on university campuses.

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