HACETTEPE UNIVERSITY

INSTITUTE OF POPULATION STUDIES

THE METHODOLOGICAL CONTRIBUTIONS OF
TIME USE SURVEY TO
MEASURE THE WORK-LIFE BALANCE

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Supervisor

Assoc. Prof. Dr. İlknur YÜKSEL-KAPTANOĞLU

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This is to certify that we have read and examined this thesis and in our opinion it fulfils the requirements in scope and quality of a thesis for the degree of Master of Arts in Social Research Methodology.

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TUS-TEZ

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TUS-TEZ

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SUMMARY

The aim of this study is to understand the methodological contributions of Time Use Survey diary data for measuring work-life balance in Turkey. For comparison, other data sources were selected according to the criteria of having national estimates, conducted by official institutions that use scientific methods for collecting data, conducted in similar time with Time Use Survey (2014-2015) and that include questions about social life, sports, family life, unpaid work, paid work and time intensity which are the components of work-life balance. Methodological comparisons of time use survey diaries and other data sources were made for every stage of quantitative research. All indicators on work-life balance including recommended ones by UNECE and OECD were produced by the data sources and the results were compared in a methodological manner under the headings of paid work, unpaid work, leisure time and time intensity.

The disadvantages of Time Use Survey are that it's a costly survey, respondent load and workload is very high, and it's conducted infrequently. An irregular or infrequent activity may not seem in the diaries and there is the possibility of respondent not to record all activities in diaries. But its advantages are suppressing the disadvantages. Time use survey produces data of higher quality and reveals the gender inequality better than other data sources due to its different survey methodology. Furthermore, by time use survey data it's possible to obtain large number of work-life balance indicators by the matrix structure of the diaries with contextual variables. Total workload was one of the key indicators that could only be produced from time use survey data and employed women were found to have the most workload due to excessive time spent on unpaid work in addition to their paid work durations contrary to the situation of men. Thus, it's recommended for the decision makers to benefit from time use survey data for developing new policies on work-life balance in Turkey.

Key words: Time use survey, time diary, work-life balance, gender equality, unpaid work, data quality, total workload

ÖZET

Bu çalışmanın amacı Türkiye'de iş-yaşam dengesinin ölçümüne Zaman Kullanım Araştırması günlük verilerinin yöntemsel katkılarını incelemektir. Karşılaştırma yapmak için diğer veri kaynakları ulusal düzeyde tahmin verme, veri toplama konusunda bilimsel yöntemler kullanan resmi kurumlar tarafından gerçekleştirilmesi, Zaman Kullanım Araştırması (2014-2015) ile yakın zamanlarda yapılmış olması ve iş-yaşam dengesinin bileşenleri olan ücretli çalışma, ücretsiz çalışma, sosyal yaşam, spor, aile yaşamı ve zaman yoğunluğu konularında soru içermesi kriterlerine seçilmiştir. Nicel araştırmaların her aşaması için Zaman Kullanım Araştırması ve diğer veri kaynaklarının yöntemsel karşılaştırması yapılmıştır. Veri kaynaklarından UNECE ve OECD'nin önerdikleri de dahil olmak üzere iş-yaşam dengesi konusundaki tüm göstergeler üretilmiştir ve sonuçları ücretli çalışma, ücretsiz çalışma, boş zaman ve zaman yoğunluğu başlıkları altında yöntemsel olarak karşılaştırılmıştır.

Zaman Kullanım Araştırmasının dezavantajları masraflı bir araştırma olması, cevaplayıcı yükü ve iş yükünün çok fazla olması ile çalışmanın seyrek olarak gerçekleştirilmesidir. Düzensiz veya sık olmayan bir faaliyet günlüklere yansımayabilir ve cevaplayıcının her faaliyetini günlüğe kaydetmeme olasılığı mevcuttur. Fakat avantajları dezavantajlarını bastırmaktadır. Zaman Kullanım Araştırması farklı araştırma yönteminden dolayı diğer veri kaynaklarına göre daha yüksek kalitede veri üretmektedir ve toplumsal cinsiyet eşitsizliğini daha iyi ortaya çıkarmaktadır. Üstelik Zaman Kullanım Araştırması verisi ile günlüklerin bağlamsal değişken içeren matris yapısından dolayı çok sayıda iş-yaşam dengesi göstergesi üretilmesi mümkün olmaktadır. Toplam iş yükü sadece Zaman Kullanım Araştırmasından elde edilebilen göstergelerden biridir ve erkeklerdeki durumun tersine çalışan kadınların ücretli çalışma sürelerine ek olarak ücretsiz çalışmaya çok zaman ayırdıkları için en çok iş yüküne sahip oldukları bulunmuştur. Bu sebeple, karar alıcıların Türkiye'deki iş-yaşam dengesi üzerine yeni politikalar geliştirmek için Zaman Kullanım Araştırmasından faydalanmaları önerilmektedir.

Anahtar kelimeler: Zaman kullanım araştırması, zaman günlüğü, iş-yaşam dengesi, toplumsal cinsiyet eşitliği, ücretsiz çalışma, veri kalitesi, toplam iş yükü

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

ATUS   American Time Use Study

BLS   Bureau of Labor Statistics

CAPI   Computer Assisted Personal Interviewing

CtuR   Centre for Time Use Research

ECHP   European Community Household Panel Study

EU   European Union

EUROSTAT   European Statistical Institute

FSS   Family Structure Survey

GDP   Gross Domestic Product

HETUS   Harmonised European Time Use Surveys

HLFS   Household Labor Force Survey

HU   Hacettepe University

HUIPS   Hacettepe University Institute of Population Studies

ICATUS   International Classification of Activities for Time-Use Statistics

ILCS   Income and Living Conditions Survey

ILO   International Labour Organization

INSEE   The National Institute of Statistics and Economic Studies

LSS   Life Satisfaction Survey

N/A   Not applicable

NUTS   Nomenclature of Territorial Units for Statistics

MFSP   Ministry of Family and Social Policies (MFSP)

MTUS   Multinational Time Use Studies

NUTS   Nomenclature of Territorial Units for Statistics

OECD   Organisation for Economic Co-operation and Development

RWFL	Reconciliation between Work and Family Life
SDG	Sustainable Development Goals
SNA	Satellite National Accounts
SR	Statistical Regions
THS	Turkey Health Survey
TurkStat	Turkish Statistical Institute
TUS	Time Use Survey
UK	United Kingdom
UN	United Nations
UNDESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Program
UNECE	United Nations Economic Commission for Europe
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNSD	United Nations Statistics Division
US	United States of America
WOWTA	Work Organisation and Working Time Arrangements
WLB	Work-Life Balance
WOW	Work and Opportunities for Women

CHAPTER 1. INTRODUCTION

Time is the only source that is equal for every one which is 24 hours per day and can't be gained back whatever we do. So, its value is priceless. On which activities we spend time distinguishes us from one another and for human equitableness this information is needed. To meet the needs for living, people have to work, earn money, do the housework and care for children. Moreover, people need personal care, resting, socializing with family and friends and leisure time activities for relaxing and reducing stress.

Especially after the industrial revolution, people who work inside the house and outside of the house were seperated between women and men but the division of household labor was not divided up between women and men equally at home. According to the gender division of labor, the works between paid work and unpaid work are shared between genders unequally as men generally work in paid work for the market and women in unpaid work for home (Washbrook, 2007). Traditionally housework and care work have been assigned as the responsibilities of women in almost whole world.

Starting from the years of 1970's, employment of women increased and by gaining economic power their preferential rights also increased. But the increase of women's employment wasn't enough for gender equality because the belief that household works were women's responsibilities traditionally continued. This situation resulted in increasing the total workload and time pressure in employed women. Time spent for leisure time, social activities and personal care was decreased. Employed women with children were in worse situation in this respect. By necessity, they had to sacrifice time for leisure, personal care and even in most times they had to leave their work life. The case for men was different due to the fact that they weren't seen as the main responsible people for household works and child care. Thus, inequality in time results in gender inequality (Kongar and Memiş, 2017).

With the feminist movements in the world, awareness of people was tried to be expanded about the importance of unpaid work and invisible work to be made visible.

Time Use Survey (TUS) was seen as a great potential that could be used for revealing gender inequalities and measuring unpaid work. By means of it, the unpaid work would be visible because it gives information on time spent of all activities in 24 hours by the individuals from time diary data. According to time use survey, while time spent for sleeping and personal care were generally similar between women and men, time spent for work was different between them as household work was mostly done by women and paid work was done by men (Kongar and Memiş, 2017).

Today work-life balance is an important subject involving the balance of people's needs in life that require time for paid work, unpaid work and in the remaining time relaxing, leisure activities and socializing. Therefore, it reflects the situation on gender equality. With work-life balance, balance is needed between time spent of all mentioned activities. Accordingly, in developed countries as Sweden, for promoting gender equality; in addition to policies for increasing women's employment, social policies were developed for reducing total workload of them. Government was accepted as the main responsible institution for care work rather than men. Budget for care work was allocated a big share from National Income. Child care services were free of charge so that every woman regardless of their income, can continue their work life. Similar services were performed for elderly care also. As a result, especially for women work-life balance was ensured to result in increasing gender equalities.

Turkey is behind these developments in terms of gender equalities and work-life balance. Unpaid work is still seen obviously under the responsibilities of women and considered worthless, not a labor. So, the employment of women is very low because of their workload on care and house works. Moreover, women who participate in labor force continue their works for household and caring. So, employed women have to decrease their leisure time, socializing, personal care. In this frame there is a large inequality in time used between genders in Turkey. In TUS 2014-2015 results disseminated by TurkStat, it was noticed that time spent on household and family care work was only 1.5 hours less for employed women than unemployed women (TurkStat, 2016). Total workload of employed women puts pressure on needed activities in their lives.

Accordingly, exposing invisible work is crucial in terms of gender equality. For work-life balance, government services for child care and elderly care are insufficient in Turkey. The increase of women's employment requires the development of policies for the division of unpaid work. In this framework, TUS results should be utilized for revealing gender inequalities on time use and new policies should be developed according to it.

For measuring work-life balance, some studies give results as weekly working hours from Labor Force Survey or durations of sports from Turkey Health Survey. But each of them gives one dimension of work-life balance. Since TUS produces results for all activities with contextual information on, where, with whom, when in 24 hours, its potential could be great for measurement of work-life balance. It gives average time spent for paid work, unpaid work, leisure activities, social activities and personal care. United Nations Economic Commission for Europe (UNECE) recommends indicators on some fields in their guidelines that were selected for reflecting information and development of policies. On the field of work-life balance, indicators are recommended to include information that most of which could only be produced from TUS diary data that gives data on main and secondary activities with whom, when and where. Moreover, there are also indicators reflecting multitasking, flexible working, family time among them.

Due to these reasons, analyzing the contribution of TUS in depth is neededto measurement of work-life balance and its results are considered to be useful when developing new policies. Even though there are some methodological studies, within the framework of our knowledge, there are no studies in terms of methodological contributions of TUS on the subject of work-life balance. Therefore, this thesis focuses on the contributions of TUS on work-life balance by comparing the other surveys that produce data on the same subject.

The aim of this study is to find out the answers for the research questions mentioned below;

- What are the differences between the survey designs and methodologies of TUS and other data sources that produce data on work-life balance? Do these differences make difference on data quality, data accessibility, data reliability for the indicators produced from them?

- What is the contribution of Time Use Survey diary data for measuring Work-Life Balance in Turkey?

- What is the difference between the indicators obtained from other surveys and TUS diaries in terms of Work-Life Balance? Do time diaries make a difference in data quality and data variability due to their survey instruments and data collection methodologies?

- What is the contribution of TUS diaries in terms of revealing gender inequalities? Is there a difference between other results and diary results in this respect?

The methodological comparison will be carried out for all data sources in detail by evaluating all stages during quantitative research methodology processes for their outputs. Work-life balance includes many components as time spent on paid work, flexible work, unpaid work, leisure activities, time spent with family, time intensity. Work-life balance indicators will be produced by TUS diary data and other surveys data for searching the differences between the results in terms of data quality and variability by determining the advantages and disadvantages of them. Results for gender inequalities will be analysed for all of the indicator results. For examining the contribution of TUS on work-life balance measurement, the quality, accessibility and variety of work-life balance indicators from time use diary data will be evaluated by analysing the differences between genders.

In Chapter 2, literature on TUS including historical information, work-life balance and TUS relation, studies in Turkey on TUS and work-life balance will be explained.

In the methodology chapter, information on data sources, TUS methodology, methodology of calculation of the indicators and recommended indicators on work-life balance by OECD and UNECE will be given. In Chapter 4 methodological comparison of whole processes of the quantitative research for the data sources as aims, concepts, questionnaire design, sampling, mode of data collection, field application, data processing/analysis/dissemination will be performed by focusing on different structure of TUS diaries.

In Chapter 5, findings for work-life balance indicators will be represented by descriptive analysis under the headings of paid work, unpaid work, leisure time and time intensity. The results will be analysed to see the difference of TUS methodology.

In Chapter 6, the discussion of the findings will be done by aggregating the advantages and disadvantages of Time Use Survey. Finally, suggestions will be explained on Time Use Survey and Work-Life Balance.

CHAPTER 2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

In this chapter, the literature review on Time Use Survey will be explained with a historical approach including TUS harmonization studies that were started to standardise countries' time use data to be comparable. Then, work-life balance and its relation with time use surveys will be discussed. In the last section of this chapter studies conducted using the 2006 and 2014-2015 TUS data of Turkey will be given with a focus on work-life balance.

2.1. Historical Background of Time Use Survey

Time use, as a systematic pursuit involving the collection of information detailing people's sequential activities during a selected period of time, appeared nearly a century as a pragmatic response to perceived societal needs for information (Michelson, 2005). First time use survey was conducted for getting data on the living conditions of the working class in the beginning of 1900s. By the support of organized labor groups for decreasing working hours, it was aimed to have information for long durations of working and short leisure time of industrial and agricultural workers. The study obtained results on living conditions and lifestyles of them (ILO and UNDP, 2018). The first appearance of time use was apparently a small study conducted at Columbia University in 1913 by George Bevans. Bevans' work was published under the title, How Workingmen Spend Their Spare Time (1913) (Michelson, 2005).

In the 1920s, time use surveys were performed for planning the community, government or to see the effects of agricultural technologies on time use in the Great Britain, the U.S. and in countries that the economy was centrally planned (UNSD, 2005). The first large-scale study of 24-hour time budgets was conducted by the Soviet economist Stanislav Strumilin in the early 1920s on the industrial workers of Moscow for the purpose of enhancing economic planning. In the United States in 1934 diaries were collected in Westchester County to study the amount and uses of leisure in this suburban country (Michelson, 2005).

In the aftermath of World War II, the mechanical servants made possible larger and more systematic time use projects with the help of computers. The Soviet Union

carried out extensive time use survey starting in 1959 to supply much needed data to authorities concerned with the planning of manpower resources, educational facilities, communal services, etc. The Institute for Economics of the Soviet Academy of Sciences in Novosibirsk and allied organizations conducted surveys of over 100,000 person days in that connection. National efforts took off in many countries. The Japan Broadcasting Corporation began in 1960 the systematic, recurrent time budget study of large, representative samples of the Japanese population. At the same time, national statistical/census agencies in Eastern Europe became engaged in time use survey (Michelson, 2005).

Over the past decades, the objectives, methods, analysis and use of time-use surveys have been developed and changed. Time use data was used for planning transport and social policies and for companies to get information on how persons use their time on leisure time and so to organize their working programs better in the years of 1960s and 1970s (ILO and UNDP, 2018). Mostly academicians used time use survey data until the end of the 1960s. After the 1970s the decision makers discovered the importance of it increasingly (UNECE, 2013).

Since the beginning of the 1970s, time use studies started to be conducted for national levels and studies for standardizing time use data methodology was performed in Europe and other developed countries. The aim was to follow the improvements on lifestyles, and comparison among time spent on paid work and unpaid work, leisure time, transportation and commuting (Charmes, 2015). In the 1970s, developing countries also began to implement time use surveys for understanding the productiveness of household work. Later on, studies were concentrated on the informal economy especially in Eastern Europe, the domestic economy and expectation of gender equity (Mueller, 2018).

After the midyears of 1970s and women empowerment movements, time use data has been used for understanding gender inequalities, for discovering the contributions of women's unpaid work to national well-being and for developing policies on the empowerment of women (ILO and UNDP, 2018). Paid work and unpaid work are unequally distributed between women and men, for this reason, time

spent on unpaid work (household and care work) data is an essential component of gender based analysis. Examples from time use surveys express that generally, women spend more time on domestic work and child care compared to men. Even though some increases have been observed, it is still very limited. In Finland, men spent time of 12 minutes more on domestic work in a day in 2000 than they did in 1987 (Niemi and Pääkkönen, 2002). In the United Kingdom men spent time of 17 minutes more on household cleaning and childcare in a day in 1995 than they did in 1961 (Gershuny, 2000). In Canada, time spent on housework and childcare by men increased 13 minutes between the years of 1998 and 2010 (Statistics Canada, 2011). In France, time spent on unpaid work in a day by men increased only 13 minutes between the years of 1986 and 2011, while women decreased time spent on unpaid work by 48 minutes between these years. In 2011, the difference in time spent in a day between women and men was still 87 minutes (Ricroch, 2012; UNECE, 2013). Because of time use survey results, the times of the activities could be accessed, the starting time of the work can also be used. This subject was searched in Australia and it was seen that there was a large difference between the proportions of women and men who work in the early hours in the morning. It showed the reflection of women's part-time working more and childcare responsibilities in the early hours. It was written as "While policymakers consider day care, after-school care, and even weekend care in terms of supporting working parents, they have given little attention to early morning care" (Callister, 2004; UNECE, 2013).

Time use survey results were used for developing policies for gender equality in many countries. In UNECE Guidelines, the studies achieved in some countries were stated as: "Japan has "The Basic Plan for Gender Equality", which was established by the government under "The Basic Law for a Gender Equal Society". Research in Romania has looked into the gender differences in time use in life cycle stages. In Hungary, the Women and Men Gender Equality Council is collecting information on all aspects of gender equality, including reconciliation of work and family life and sharing of work and housework between men and women. In France, time-use surveys, in conjunction with other data sources, are used by INSEE, the National Institute of Statistics and Economic Studies, to publish a report entitled Women and men – an

overview of gender parity (Femmes et hommes – Regards sur la Parité) every four years. Norway has used time-use surveys in research for several government offices since the 1970s." (UNECE, 2013).

By time use surveys, unpaid work can be measured which results in the possibility of valuing unpaid work and adding to household satellite account (UNECE, 2013). In the years of 1990s, time use survey usage areas were affected by the international debate on including unpaid production in national economic accounts. In all four United Nations conferences on women, improved measurement of both the remunerated and unremunerated work of women was mainly proposed for the countries to apply (UNSD, 2005). Selected objectives in United Nations Report of the Fourth World Conference on Women, Beijing 1995 are developing better ways to produce data on unremunerated work counted in SNA, to measure unemployment and underemployment of women that is underestimated currently and to value unremunerated work uncounted in SNA as caring, cooking, improving international time use classification that reveals gender differences in remunerated and unremunerated work, applying time use survey regularly to measure quantitatively unremunerated work that can be also in parallel activities (United Nations, 1996).

After the conference, the use of time use survey increased to measure gender difference especially in paid and unpaid work and to obtain a satellite account of household production in developing and transition countries. After the years of 1990s, calculations from the time use data have been used to measure household satellite accounts in many developed countries as New Zealand, Australia, Canada, and the U.S. (UNECE, 2013).

In UNECE Guidelines, it was explained as Stiglitz 2009 commission suggested to concentrate measuring well-being of people by changing it from measuring economic production in "Report by the Commission on the Measurement of Economic Performance and Social Progress" (Stiglitz et al. 2009). Time use survey was determined as a critical way of getting data in the subject of well-being by the commission. (UNECE, 2013). When well-being is considered according to quantity measures as income, it means that if a person gets a high salary s/he has a well quality

of life. But it's known that jobs which bring high income, require long working hours and as a result leisure time and home production durations decrease. By time use diaries, wider resources are possible in these matters (Stewart and Stewart, 1999; German Federal Statistical Office, 2010). TUS data produces the best quality information on measurement of leisure time and social life time additionally to the determination of the effect of work-life balance on well-being (UNECE, 2013).

Time use survey is evaluated as an essential part of social statistics by most developed countries and the number of the countries that conduct time use survey has increased (UNECE, 2013). Even the number of time use surveys has reached to 88 countries worldwide, relatively few of them are recent surveys, and most of them were conducted before 2010 (Mueller, 2018).

The use of different methods in the collection of TUS data prevents comparability among countries. Therefore, international organizations provoke the harmonization studies of TUS. Today, in the 21st century, time use data have been encouraged to use the collection of some indicators under the Sustainable Development Aims which contributes to the comparison between the countries.

The studies on harmonization of TUS data are implemented by the United Nations and Eurostat. These studies make important contributions to the measurement of gender equality, paid work, unpaid work and leisure. "Guidelines for Harmonizing Time Use Surveys by UNECE" explains key areas that time use diary data is necessary for informed policymaking. These key areas are unpaid work and non-market production, well-being, and gender equality. Other key areas for policy making by time use survey results are health, work, culture and sport, transport, environment and climate, time poverty and policies for specific population groups (UNECE, 2013). Detailed information relating to TUS methodology will be given in the Methodology chapter.

2.2. International Harmonisation Studies of Time Use Survey

In the world, there are mainly two sources that work for harmonization of time use studies which are the European Statistical Institute (Eurostat) and the United

Nations Statistics Division (UNSD). While Eurostat focuses on time use surveys in European member and candidate countries, UNSD focuses on the whole world in both developed and developing countries. Both institutions disseminate guidelines for the countries to conduct a time use survey within the framework of a standard and internationally comparable methodology. In the guidelines, there is information regarding the whole process of time use survey implementation including concept, classification, questionnaire design, sampling, field application, data processing, and dissemination. Different time use activity classifications are recommended by Eurostat and UNSD. Harmonized European Time Use Surveys (HETUS) Classification is proposed by Eurostat and it was designed with the priority of aiming sociological ordering of the activities with more detailed leisure time activities. International Classification of Activities for Time-Use Statistics (ICATUS) is proposed by UNSD and was designed with the priority of economical values of the activities whether they are productive or not, especially with more detailed unpaid work activity codes. Many developing countries use ICATUS for determining the economic values of the activities. These two classifications can be transformed into each other and Eurostat cooperates with UNSD for improving time use survey methodology. Below information on the history of HETUS and ICATUS are given after the description of Multinational Time Use Studies (MTUS) of Centre for Time Use Research at Oxford University given that combines TUS datasets in common variables by including recent data from the HETUS and other national level time use projects (Eurostat, 2020, UNSD, 2020)

2.2.1. Harmonised European Time Use Surveys (HETUS)

When World War II was exchanged with the Cold War, social scientists started to recognize the political importance and academic value of comparable multinational research projects. Multinational Comparative Time-Budget Research Project which was sponsored by UNESCO and led by Sandor (Alexander) Szalai, for being the first cross-national time use project to aim harmonizing data collection methods for different countries in 1972 (UNECE, 2013). This created an opportunity for the leading time use researchers to unify their study techniques. In this regard, the researchers agreed on an operational version of 24-hour day for time use. Twelve countries came

on board and cooperated in the planning and analysis (Michelson, 2005). This project constituted the methodology of the survey that is still used by many countries. In the years of 1980s, researchers harmonized the datasets that belong to years of the beginning of the 1960s into a dataset with common variables and total time spent in a day for 69 activities. This created the Multinational Time Use Study which is now conducted by the Centre for Time Use Research at Oxford University. This study has developed as containing more than 60 datasets from 25 countries and includes recent data from the Harmonized European Time Use Surveys and the time use surveys of America and Canada (UNECE, 2013).

Since the years of 1960s in Europe and in some other countries, Time Use Surveys had been started to be realized in an increasing number. Although the potential of Time Use survey data and the number of countries carrying out the survey increases, the international comparability of the data was at a low level. In this context, Eurostat started working for internationally comparable Time Use Survey data in the years of the early 1990s (Eurostat, 2009).

In the period of 1996-1997, the pilot studies of Time Use Survey were executed in 9 European member countries and in 9 transitional countries, the first step of harmonizing works was completed in 2000, and 'Guidelines on Harmonised European Time Use Surveys' (HETUS) was published. In the guideline, there were suggestions on the whole steps from the design of the survey, activity classification to the processing of results, including the sample design, days of the diary, survey questionnaires, activity lists, estimators, and data coding (Eurostat, 2009). The focus was on the production of harmonized datasets (UNECE, 2013).

On the other hand, "Time Use Survey-Database" studies were continued. For the first round of harmonization (HETUS 2000 round), 15 European countries' TUS data was harmonized that were conducted between the years of 1998 and 2006. For the second one (HETUS 2010 round), 18 European countries that have TUS data for the years 2008-2015 participated in the harmonisation process. TurkStat also participated in harmonization process of HETUS 2010 round with TUS, 2014-2015

microdata. Eurostat published HETUS Guidelines in 2000, 2008, 2018 (Eurostat, 2020).

The Harmonised European Time Use Surveys (HETUS) are conducted in member and candidate European countries about once in ten years in gentlemen's agreement between the countries and Eurostat. The third round of harmonisation is planned to be conducted in the years of 2020 by Eurostat. The countries that participated to the harmonization processes conducted TUS methodologically coherent with each other with standardised survey design and (HETUS) activity classification due to the HETUS guidelines, as a result the TUS data was standardized and the combined dataset is disseminated in Eurostat's web page with statistical tables. Since the survey is applied between ten years, HETUS activity classification is revised for the reason that the social habits, activities change in 10 years, as activities using smart devices increased according to the years of 10 years ago. Detailed information relating to HETUS classification will be given in the Methodology chapter. (Eurostat, 2020).

2.2.2. ICATUS

In 1995, the Statistical Commission of United Nations underlined the value of statistics on time use for reflecting countries' socioeconomic structure, gender equality and asked UNSD to prepare a classification of time use activities. In the same year in Fourth World Conference on Women, the international institutions in addition to the national institutions were required to develop an internationally comparable time use classification that brings out differences in remunerated and unremunerated work between women and men. In accordance with these developments, UNSD prepared a draft classification in 1997 for contributing to the countries to conduct TUS in a comparable way (UNSD, 2019).

In 2005, the guide named "a Guide to Producing Statistics on Time Use: Measuring Paid and Unpaid Work" by the United Nations Statistics Division was disseminated to present the different approaches in the design and dissemination of time use data. The main aim is to suggest countries how to conduct a time use survey

which is comparable for harmonizing for international use. In 2013, the United Nations Economic Commission for Europe (UNECE) prepared and disseminated "Guidelines for Harmonising Time Use Surveys". On the web page of UNSD, there is information regarding methodology and TUS data of the countries (UNECE, 2013).

In the guide of "a Guide to Producing Statistics on Time Use: Measuring Paid and Unpaid Work" there is information about the trial International Classification of Activities for Time-Use Statistics (ICATUS). This classification was based on the System of National Accounts (SNA) production boundaries for determining the activity coding. The last revision on ICATUS classification was implemented in 2016 by the suggestions of Expert Group of United Nations Statistics Department (UNSD). ICATUS 2016 is more comparable than the before versions of the classifications. ICATUS classification is evaluated as an important value for following achievement of Sustainable Development Goal 5.4.1, which is "Percentage of time spent on unpaid domestic and care work, by sex, age group and location". It's effective especially for collecting data on unpaid work, work that is out of SNA boundaries, and productive economically. Many developing countries adapted this classification according to their countries and used it in their TUS (UNSD, 2019).

2.3. Gender Equality, Work-Life Balance and Time Use Survey

In this section, firstly the relation between TUS and gender equality will be explained by giving information on literature containing TUS contribution on unpaid work, paid work, and non-market production. Then work-life balance concept, measurement of it, and studies on using TUS as a data source for work-life balance measurement will be represented.

2.3.1. Paid, Unpaid Work, Non-Market Production

For unpaid activities, the third-person criterion of Margaret Reid was used to decide whether they are productive economically. It was "One approach that has been used to define nonmarket output (particularly in household production applications) is Margaret Reid's (1934) third-party criterion: is the output in question something that a person could have hired someone else to produce for him?" (Krantz and Kent, 2009).

When we evaluate according to this definition, it can be seen that the activities that can be replaced by substitutes of the market are unpaid work due to productivity economically. Moreover, the unpaid household work is done for their own household. Within this frame, unpaid household work was categorized into four groups: housework, shopping for the house, caring, and travel for household work (Krantz and Kent, 2009).

Unpaid work can be done by the household and consumed by the family as in the examples of cooking, cleaning. Also, it can be consumed by people who don't live in the household, like cooking a meal for the friends who came to the house (Miranda, 2011). Unpaid work activities are very basic needs for the everyday lives of individuals and contribute to their well-being. For having information on gender equality, for calculation of the value of unpaid work, data on unpaid work is necessary. Especially the unpaid care work is an essential topic regarding policy debates, provision of child care etc. (McGinnity and Russell, 2008).

Gender inequalities can be easily seen when examining the results of time spent on unpaid work by the results of the Time Use surveys all over the world. Women around the world spend a lot of time taking care of children, adults, and other family members. Unpaid care work is not understood as productive work, as a result, it is not embedded in the calculation of national income (Neetha, 2010). Data on time spent in unpaid work consisting of household and care work are important components of gender equality because there is an unequal distribution of paid and unpaid work between genders. Because women do the most contributions to unpaid work for the household, making clear women's full activities is important for the improvement of gender equality. As a result, the results of the time use survey can be used for developing policies on gender equality. This usage has been the greatest reason for the time use surveys that were conducted in last periods (Antonopoulos and Hirway, 2010 as cited in UNECE, 2013).

By time use survey data, assigning economic value to the unpaid household work, that especially housewives do for so much of the day, which is non-market production is possible. Time use survey data is the essential source for records of data

not entered in conventional accounting systems. Without time use data, there would be no systematic record of who spends how much time fulfilling household responsibilities (Michelson, 2005).

Women's contribution to unpaid productive work can be calculated by Time Use Survey data and feminist economists work on showing the contribution of women to the economy (Neetha, 2010). On the other hand, the information on care work and caregivers is still very limited in time use surveys. However, in 1998-1999, the Central Statistical Organization of India, conducted time use survey 1998-99, which was the only large-scale survey on unpaid care work. The scope, design of TUS, and topics which include information about unpaid care work are discussed (Neetha, 2010).

In the results of the American Time Use Survey (ATUS) conducted between the years 2003 and 2007, the results were for the people aged 15 and older. In ATUS; 17 major categories were in the activity list with hundreds of subcategories (Krantz and Kent, 2009). The results of this study show that the average time spent in a week for unpaid household work was 21.5 hours. The duration for housework was 12.4 hours, for shopping for house goods and services was 3.1 hours, for caring 2.9 hours and for travel of household work was 2.7 hours in the total time spent for household work. About 75% of individuals did household activities in a day. In the results, it was noticed that women did more unpaid household work and men did more paid work in a week. Time for total work (paid and unpaid) of women and men was found similar. It was also noticed that time spent for unpaid household work was more in persons aged between 50 and 66. In this age group, it was seen that the employed population was decreased (Krantz, Kent, 2009).

2.3.2. Work-Life Balance and Time Use Survey

Danger starts when the responsibilities of people's paid employment stress other dimensions of their life. Many governments are interested in the concept of work-life balance. Measuring the work-life balance is not easy. The line between work and free time is not clear. While some people have been satisfied with their employment than from leisure time, others like to spend more time and money on leisure time

activities which remain other dimensions suffering. This also makes imbalance additionally that arises from working many hours. (Fisher and Layte, 2004).

In the document of UNECE Guidelines, it's explained as researchers and policymakers have been interested in statistics on working hours due to long work hours that can damage the social life of the people (Lourie, 1996). Some surveys like a labor force survey collect data on working hours and some other surveys get data on the duration of commuting for including full dimensions of paid work. These data reflect important results for life quality but they aren't enough for all dimensions of life that are key components of policies (Fisher and Layte, 2004).

With these surveys' results, the data of what time during the day and week the paid work is achieved, can't be accessed. As a result, they can't give information on atypical days. Moreover, information about the persons with them while doing the activity as spouses or other family members can't be accessed with these surveys (Gershuny, 2011). Time spent with family members or alone is very critical information that can be accessed by time use survey results for measuring work-life balance. With other surveys, the context of the day information can't be achieved (Fisher and Layte, 2004). For estimating the total number of hours, time use survey diaries give more accurate results than the results of the direct questioning method in the other social surveys (Robinson and Bostrom, 1994). In addition, time spent at workplace doesn't mean time spent on working, because people may do other activities rather than working in the workplace (Robinson and Godbey, 1997). In addition to these advantages, with time use diaries, information about informal work, casual work and subsistence work can be accessed (Merz, 2009). With time use surveys, whole points for measuring the balance of life needs can be acquired, which results in work-life balance policy development (Fisher and Layte, 2004).

In the study of Callister (2004), with the New Zealand time use survey it was aimed to see how the people spend time on their work and families. There was a focus on the advantages of time use data when the paid work is done, with which parallel activities are done simultaneously, and where it's achieved by time use diary results. The results were reflected that many employed persons spent some time on paid work

outside of standard working days and some time on paid work at home. But for most of the people home wasn't the main workplace. It was seen that for some employed persons, long durations of paid work aren't equal to insufficient time with children. At high quality works, people could choose where and when to work, so even long hours' work, people could arrange working hours to spend time with their children and work at late hours at home for example. It was seen that an important part of white collar workers who work long hours, work at home in the evening by doing child care simultaneously in addition to paid work. Moreover, a person working long hours with a high income has the opportunity of paying someone to make her housework, so her time spent on unpaid work and total work decrease. Oppositely, a person who works in the hospitality sector has to work on Friday nights and weekends, at which formal child care is impossible, s/he can't work at home, as a result, s/he can't do child care at the same time. Here it's seen that although this worker does paid work in low hours, s/he has an imbalance of work-life balance more than the long working white-collar worker So, in addition to the duration of working hours, the timing of working hours and harmony with parent and children are important factors. By these examples, it was evaluated as indicators as long work hours would be misleading in terms of work-life balance. Also, it was stated as the time use survey wasn't used sufficiently by the policy makers and researchers on work-life balance. If the results were used efficiently, a new time use survey will be conducted easily in New Zealand (Callister, 2004).

Social theorists consider that time for paid work is very essential for work-life balance as weekly working hours' data, but it isn't adequate for reflecting the total work. Unpaid work should also be regarded in addition to paid work by referring work for the reason that it should be done for maintaining life. Because these works don't result in relaxing, resting, quality time by socializing with family or friends. The measures for work-life balance are suggested as time spent for total workload which is the sum of paid work and unpaid work and the time that people have control over. It is considered that the time use diary data could satisfy this purpose by measuring the paid, unpaid work, and leisure time. By time diaries, we can obtain information about activities with contextual data as with whom, where, how s/he travels that will enable valuable results for work-life balance. Indicators about work as workplace, actual

working hours, time spent on unpaid work, leisure time, and personal care can be produced by time use diaries. A comparison between time spent on these activities is very important for evaluating the balance. In the work-life balance, the overlapping of the working activity with the other activities is also a key point. For measuring this, in the time use diaries, multiple activities done at the same time are analyzed. Moreover, flexible working, the place of work, time spent with family/friends are the other aspects of the work-life balance concept (Fisher, Layte, 2004).

In the studies of Fisher and Layte (2002, 2004), the value of Time Use Survey was searched in the measurement of Work-Life Balance. As data sources, Multinational Time Use Studies (MTUS), UK National Time Use Study (2000-2001), and the European Community Household Panel Study (ECHP) were used. As for indicators, the proportion of leisure time, overlapping of work, and other activities, and time spent with other people were determined. In the study, the average time spent on paid work, unpaid work, leisure time, and personal care time were compared with each other. Then work overlap on other activities was calculated. Time spent for more than one activity done at the same time was calculated and compared with multiple activities at the same time that work is one of the activities. Finally, questionnaires were used for searching data on socializing connections that were performed in long time intervals. In the conclusion section, the advantages and drawbacks were explained. A major advantage of work-life balance measurement is that time use diaries give more reliable data on the total workload than the other sources and working times in connection with other activities. One drawback was while daily or weekly diaries give important data, in longer time intervals questionnaires are more reliable. Another drawback was the frequency of conducting the survey in many countries for expensiveness and response burden. For solving this problem, light surveys were suggested to be conducted more frequently (Fisher and Layte, 2002; Fisher and Layte, 2004).

In many countries, there are developments for using time use surveys on the subject of Work-Life Balance as stated in UNECE Guidelines. In Japan time use survey data has been used for following developments in work-life balance policies.

In Finland, work-life policies have been developed as making work life more attractive and flexible work times by time use data. In Canada also the importance of time use surveys has been recognized for measuring time pressure. In India, especially women in low economic situations were found to be exhausted after very tiring physical activities and no time for social regeneration (Hirway, 2010).

The objectives of Straub's (2007) study were to compare the work-life balance policies and practices in 14 European countries and to understand whether these practices increase women's management positions. It was seen that women spend more time on unpaid work but men and women both spend equal time on paid work. Thus, the total workload of women is more than men. Some companies had work-life practices such as flexible working, short working time, tele-working, child care service, and maternity leave arrangement. There were apparent differences between work-life balance applications and women's labor force participation inEuropean companies. Only in one case, the opposite result was occurred between the development of the career of women and work-life balance practices- for maternity leave the additional amount of payment. In other cases, the practices resulted in no significant effect (Straub, 2007).

In the study of Bauer, Gross, Oliver, Sieglen, and Smith (2007); time use surveys of Germany and the UK were used to analyze the results for evaluating the situation of countries' work-life balance. Time pressures increase at the couples that both of them work for organizing their times. The couples that both of them worked full time had the most problems in terms of time pressure. It was understood that child care was the critical variable for determining unpaid work and paid work. When childcare time increased, unpaid work increased and formal work decreased, just the opposite case is available. The timing of working hours, starting and ending hours and working on weekends were analyzed. In the findings, it was seen that limiting working hours was only one dimension of work-life balance. Time scheduling of couples' work times should be arranged for family life and work balance also. So the timing of work life and family life should be paid attention together (Bauer et al., 2007).

2.4. Studies Performed in Turkey

In this section, time use studies performed by researchers and the official institutions in Turkey will be explained. Then studies in Turkey that used microdata of TUS and researches on work-life balance in Turkey will be explained.

2.4.1. Time Use Studies in Turkey

In Turkey, the first Time Use Surveys were conducted by the academicians from the universities and by TurkStat as an official institution. Kasnakoğlu, Erdil, and Eruygur from Middle East Technical University conducted the first Time Use Survey in 2003.

The survey was carried out by interviewing 57 households and 138 individuals in two villages in Ankara and Kırşehir between May- and October 2003. It was aimed to search on time spent on household work and leisure time by socio-economic characteristics. Time use distribution was found to change on different days of the week in different months of the year. Socio-economic characteristics and sex highly eafect time use patterns. The difference between women and men's roles in agricultural activities was found (Kasnakoğlu, Erdil, and Eruygur, 2006).

Since the Turkish Statistical Institute (TurkStat) aims to produce national statistics which are internationally comparable and standardized, with the cooperation of Eurostat, for having time use statistics comparable with European member and candidate countries, studies on collecting time use data started in 1996 by TurkStat. By the Turkish Statistical Institute (TurkStat), within the context of internationally comparable Time Use Survey studies initiated by Eurostat, a pilot study was done on 117 sample households with 40 in August and 77 in November in 1996 and a report containing findings acquired and evaluations were prepared. As part of the preparation studies of the survey to be held in 2006, a pilot study was applied on a total of 78 households with 3 households in each Regional Directorate between the dates of 25 July and 7 August 2005 (TurkStat, 2016).

In 2013 Gelmez conducted a TUS in Mamak district of Ankara. 354 households that earned income for household caring activities from the government participated in the study and the aim was to show the time use differences between women and men. The women caring for disabled persons and the men aged 18 and older were selected for collecting time use data in these households. The findings of this study indicate that there were serious time use differences between women and men who cared for households that benefited from home care practice. In the survey, it was observed that the burden of care significantly restricted the time allocated by women to paid work and personal care, interest and development activities. In summary, the research revealed that home care practice should be regulated so that the burden of care does not prevent women from participating in income-generating jobs and spending time for them (Gelmez, 2017).

Eker aimed to determine the influence of gender effect on time use distributions in the times apart from working time in the study of Eker (2018). The sample of the study was comprised of public sector workers from a middle and high level in Ankara. The survey was conducted to 120 individuals aged between 25 and 65 who worked in a public institution. In the results, household division of labor was apparent between women and men as women generally do some house works like cleaning, cooking and men do other works as repairing, bill paying. This suits the traditional social norms assigned for women and men in the household work as gender division of labor. Other household activities as child care, shopping were done by both women and men (Eker, 2018).

2.4.2. Studies on Time Use Survey and Work-Life Balance in Turkey

In this section literature on studies that used the data of Time Use Surveys in Turkey and then studies on work-life balance were explained. Since non-work time and leisure time are important elements of the concept of work-life balance, studies regarding them were also mentioned. This information was given in chronological order.

İlkkaracan Ajas and Gündüz calculated market value that is household satellite accounts of household work in Turkey in their study. TUS and Labor Force Survey

conducted in 2006 were used as data sources for calculating the value for household production. Household works are the only kind of activities in time use activity list that can be done by a hired person that has "third person criterion". In the results, the large amount of unpaid female labor was explored to constitute household production in Turkey. This study drew attention to the invisible work contribution to the economy (İlkkaracan Ajas and Gündüz, 2009).

Bahçe and Memiş used TUS-2006 for searching the effects of the 2008-2009 economic crisis on time spent on paid work and unpaid work in their study. It was found out that a 1% increase in the spouse's unemployment risk resulted in 5% more time in total work of women, 1% more time for men. The increase in time for unpaid work of women was about four times more than men. The differences between women and men were much greater in urban areas. It was concluded as economic crises increased present gender inequality on time spent for work (Bahçe and Memiş, 2013).

In another study, Zacharias, Masterson, and Memiş explained a new method for poverty measuring that includes consumption and household production using TUS and the Household Budget Survey conducted in 2006. It was stated that for a minimum standard of living, there is a need to meet the needs of household production in addition to the other consumptions and this is generally ignored in official poverty lines in Turkey. Not all individuals/households have enough time for doing household and care work, so they "experience time deficits". When a household cannot meet the expense for buying market substitutes of the unpaid works, that household will have a difficulty that is not seen in the poverty measures (Zacharias, Masterson and Memiş, 2014).

Kongar and Memiş also examined gender inequalities on time use in married couples using TUS 2006 data. There were found many differences between time spent on paid and unpaid work between genders. The gender gap was largest in couples having infants according to other couples. While married women's time for housework doesn't change in different life stages, married men spend more time on housework when they are older (Kongar and Memiş, 2017).

Koçak and Gökçin (2018) compared the daily time use of OECD countries according to the results of the Time Use Survey containing Turkey TUS. The comparison was examined by the most widely used data mining algorithms, K-means clustering methods. Moreover, the results of the two TUS surveys conducted in 2006 and 2014-2015 were compared. When time use data of Turkey and OECD countries were searched, it was pointed out that unpaid work time of women in Turkey was much higher than in other countries. Additionally, women in Turkey spend 73 minutes in a day on average in paid work with a minimum duration above other countries.

The objective of Güngör's study (2019) was to examine the time use differences based on gender and age by comparing TUS data of Turkey and the United Kingdom by considering different cultures. Secondary data analysis was made by using micro data of Turkey Time Use Survey 2014-2015 and United Kingdom Time Use Survey 2014-2015. The factors that affected the use of the time of individuals in the United Kingdom and Turkey were grouped under three main headings. These headings were Personal Characteristics, Working Time, and Household Income. Personal characteristics were age, gender, and marital status. Turkey and the United Kingdom in the Psychological Area, Family Area, Social Area, Personal Area, and Travel Area between the models have different model prediction rates and factors related to this area. The most effective factor in many areas of life in Turkey was gender, in the United Kingdom weekly working time was the most effective factor in multiple areas.

In the same year, Kızılırmak and Köse used TUS conducted in 2014-2015 for examining the factors that affect time spent on which leisure activities as sports, socializing, and cultural activities in Turkey. It was found out that people in Turkey allocate more time to socializing. The factors of education, age, health, marital and employment statuses, time for child care and income affected time spent on which leisure activities with significant associations (Kızılırmak and Köse, 2019).

Gemicioğlu and Akkoç (2019) studied the distribution of workloads by the increasing labor participation of women and on leisure time demands in Turkey by using TUS 2014-2015. In the results, there was a gender gap in leisure demands. An

important reason for this was women's unpaid household work burden that limited flexibility for leisure time. Educational level and wages affected leisure time demands primarily according to the results.

On the subject of work-life balance, a survey was applied by Ceylan (2011). The main purpose was to determine the impact of family-friendly practices on work-life balance. The survey fieldwork was conducted in a hotel in Antalya province. The questionnaire used consisted of 3 parts: Demographic characteristics of participants, family-friendly business practices and employees' work-life balance. The analysis showed that there is a relationship with a low positive way between family-friendly workplace practices, and employees' work-life balance. Family-friendly workplace practices which is an independent variable only explain 18.3% of Work-Life Balance which is a dependent variable.

Akın, Ulukök and Arar, analyzed the studies in the national literature about Work-Life Balance using the content analysis method. Among 36 studies 17 of them was thesis and 19 of them was articles. It was stated that imbalance on work and life can cause damages in both work life and private life. Thus, work-life balance is necessary for employed persons. They also mentioned that most of the research was empirical, only 2 of them were theoretical. After the year 2010, it was understood that the number of studies about work-life balance increased (Akın, Ulukök and Arar, 2017).

Sarıca and Çağlı (2018) examined social policies for work-life balance programs for employees in Germany, Sweden, Greece and Turkey with respect to their different welfare level. Turkey's membership process and possible full membership have introduced different policies and practices towards the families regarding the legal practices that ensure the balance of work-family life on the labor market but it was not easy for these regulations to become effective in practice. It was understood that policies already implemented in Turkey towards work-family life balance tend to preserve the traditional-conservative family structure, which presented that Turkey has lagged behind other countries studied in terms of employment, childcare and family leave.

CHAPTER 3. METHODOLOGY

As a quantitative study, in this thesis, the methodologies of time use surveys and other quantitative surveys that collect information on work-life balance (WLB) are compared. In quantitative research, the assumptions about social reality can be measured by asking questions, and a deductive approach has been used. However, the time use survey has many advantages due to its different data collection methodology by time use diaries.

In the first section of this chapter, information about the surveys which are data sources will be given. The second section includes a specific focus on TUS methodology in a more detailed manner. Methodological comparison as evaluating the advantages and disadvantages of different methodologies of the surveys will be discussed in Chapter 4. The aim of the survey, concepts, questionnaire design, sampling, mode of data collection, field application and data processing/analysis/dissemination will be analyzed in this section for TUS methodology and in Chapter 4 in comparison to different data sources.

In the third section, the methodology for the calculation of the work-life balance indicators will be explained for every indicator in detail. The results of these indicators are shown in Chapter 5 that includes analysis and findings. The last section includes the indicators recommended by OECD and UNECE on work-life balance.

3.1. Data sources of the study

In this thesis, Time Use Survey (TUS), Labor Force Survey (LFS), Turkey Health Survey (THS), Life Satisfaction Survey (LSS), Income and Living Conditions Survey (ILCS) and Family Structure Survey (FSS) are used. All these surveys are nationally representative and produce work-life balance related data for the whole country rather than provincal or regional level.

These surveys were conducted by official institutions such as TurkStat and other government agencies, and international statistical standards were followed in these surveys. The institutions and years of the mentioned surveys are given in Table

3.1. The microdata of these surveys[1] was obtained from TurkStat. Only the Work Organization and Working Time Arrangements Module Survey of Labor Force Survey was not obtained due to the preparation of its microdata was continuing. For the tables including the results of the Module Survey, the statistical tables disseminated in TurkStat were used. For the other the data sources, calculations were made using the sampling weights given in data set by the author.

Table 3.1. Information about the surveys used for the analysis

Name of the survey	Survey year	Responsible institution
Time Use Survey(s)	2014-2015	TurkStat
Labor Force Survey(s)	2014, 2018, 2019	TurkStat
Turkey Health Survey	2014	TurkStat
Life Satisfaction Survey	2014, 2017	TurkStat
Income and Living Conditions Survey	2014	TurkStat
Family Structure Survey	2016	Ministry of Family, Labor and Social Services (TurkStat implemented)

Source: TurkStat, 2015, 2016, 2017, 2018, 2019

Time Use Survey (TUS) (2014-2015)

The first TUS of Turkey was conducted in 2006 by TurkStat within the framework of internationally comparable time use surveys initiated by Eurostat. The HETUS Guidelines were taken as reference methodologically for this survey to design the survey, sampling, field application, prepare the questionnaires and diaries, analysis and dissemination that will result in comparable TUS statistics (TurkStat, 2007).

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[1] The microdata of these data sources can be obtained by application form that is in TurkStat's webpage.

The second one was conducted in the period of 2014-2015 by TurkStat after 9 years since the first survey. HETUS 2008 Guidelines were used for the methodology of the survey in terms of international comparability. The aims of both TUS 2006 and 2014-2015 were to search how individuals use their time in a day, to see the differences in time used between different groups as sex, age, employment status etc., to get data for estimating gross domestic product in national accounts and to have time use data that has internationally comparable qualifications. The questionnaires used in TUS 2014-2015 survey are household questionnaires, individual questionnaires (aged 10 and over), diaries (weekday and weekend day) (aged 10 and over) and weekly work schedules (aged 15 and over) (TurkStat, 2016).

In TurkStat while in 2006, Labor Force and Living Conditions Department implemented the survey, in the 2014-2015 period Demographic Statistics Department implemented it. The individual questionnaire was applied to individuals aged 6 and above and the diaries were filled by ones aged 15 and above differently from the last application. These revisions were performed for producing a more comparable data set with Eurostat (TurkStat, 2016). The whole difference between the two surveys is shown in detail in Table 3.2.

Table 3.2.: Information about 2006 and 2014-2015 Time Use Survey

	2006 TUS	2014-2015 TUS
Application Period	1 Jan. 2006 – 31 Dec. 2006	1 Aug. 2014 - 31 July 2015
Sample Size	5 070 households with average 390 households monthly	11 440 households with average 880 households monthly
Estimation Size	Country wide and urban-rural wide	Country wide
Observation unit	Individuals aged 15 and over in households	Individuals aged 10 and over in households
Diary filling days	1 week day, 1 weekend day	1 week day, 1 weekend day
Time slots of diary filling	10 minutes, for 24 hours	10 minutes, for 24 hours
Elderly Care Module	N/A	Elderly care module
Location of Activity	N/A	Location of activity in diaries
Individual Questionnaire Respondent Age	6 and older	10 and older

Source: TurkStat, 2016

Family Structure Survey (FSS) (2016)

The first Turkey Family Structure Survey was conducted in 2006 by TurkStat based on the protocol signed with the Ministry of Family and Social Policies (MFSP). The implementing agency was the MFSP in the second survey in 2011, but the last one was conducted by the TurkStat in 2016 with the protocol made with MFSP. The aim of the survey was to collect information about the family structure of Turkey, the lifestyle of the individuals in the family and the values regarding family life. For the first and second survey applications, the sample sizes were designed for having estimates for Turkey, urban/rural settlements of Turkey, Statistical Regions (SR)-Level 1 (12 geographical regions) and three selected major provinces (İstanbul, İzmir, Ankara), for the last survey application it was designed for having same estimates with

the exception of urban/rural settlements. Moreover, in the first and second surveys, the individual questionnaire was applied to the individuals aged 18 and over, differently in the last survey individuals aged 15 and over responded to it. The questionnaires were household questionnaires and individual questionnaires (TurkStat, 2017).

Labor Force Survey (LFS) (2014)

Labor Force Surveys of Turkey have been conducted since 1988 using the standards of the International Labor Organization (ILO) by TurkStat. Since 2004 the European Statistical Office (Eurostat) standards have been taken as reference. The main aim of the survey is to obtain data on labor force structure including employment status, occupations, the economic activity of the workplace, working hours, duration of unemployment. The sampling was designed for having estimates for Turkey periodically, on NUTS Level 2 and for Turkey annually. The individual questionnaire was applied to individuals aged 15 and over (TurkStat, 2015).

Within the harmonization studies with Eurostat, for having information on some subjects regarding the labor market, every year different modular surveys are conducted together with Labor Force Survey. In 2007 "The Research On Accidents at Work and Work-related Health Problems", in 2009 "The Research On Entry of Young People into The Labor Market", in 2011 "The Research On The Labor Force Status of Disabled People", in 2013 "The Research On Accidents at Work and Work-related Health Problems", in 2016 "The Research On Entry of Young People into The Labor Market", and "Self Employment", in 2018 "Reconciliation between work and family life" and in 2019 "Work Organization and Working Time Arrangements" ad-hoc module surveys were conducted. For this study, the module surveys conducted in 2018 and 2019 were taken into account due to their content related to work-life balance (TurkStat, 2019).

- **LFS-Reconciliation Between Work and Family Life Module (2018)**

European Union has the targets of solving the problems on work-life balance. For addressing the challenges of parents and caregivers, Eurostat implemented LFS 2018 module of reconciliation between work and life to produce statistics on this area.

Correspondingly, this module was included in the LFS in 2018 by TurkStat. The aim of the module was to expose the effects of the caring responsibilities on labor participation, to see the caring responsibilities of the persons in employment, to learn the methods that the persons use for balancing work and family life in terms of care responsibility. This module was applied to individuals aged 18-64 (TurkStat, 2018).

- **LFS-Work Organization and Working Time Arrangements Module (2019)**

This module was conducted with Labor Force Survey (2019) in the months of April, May and June in 2019. The aim of the module was to have information about work flexibility by searching working time arrangements and organization, ways for flexible working, to understand the effects of workplace and work organization on work flexibility. This module was applied to the employed individuals aged 15 and over (TurkStat, 2019).

Turkey Health Survey (THS) (2014)

Turkey Health Survey has been conducted by TurkStat since 2008 at intervals of 2 years by referring to Eurostat standards. After the survey in 2016, the latest survey was implemented in 2019. The aim of THS is to reveal the general health profiles of the individuals, to obtain information on health indicators that show the level of development of countries and to have data for usage by the decision makers and researchers. The survey was designed to produce estimates for Turkey. The survey includes questions on diseases, accidents and health care services for children aged 0-6 and 7-14 and questions on general health, diseases, performing daily activities, health care services, smoking, alcohol consumption, personal care, etc. for individuals aged 15 and above (TurkStat, 2015, 2020).

Income and Living Conditions Survey (ILCS) (Cross- Sectional) (2014)

Income and Living Conditions survey has been conducted every year by TurkStat since 2006 by referring to Eurostat standards. The aim of the survey is to get information on the distribution of income, living conditions and poverty. It's a panel survey and the sample persons are interviewed for 4 years. In addition to panel data,

cross-sectional data is also produced every year. The sample size of the survey had been increased between the years of 2011 and 2014 to have estimates on Statistical Regions Level 2. Since 2014, the survey has been designed to estimate for Turkey, SR Level-1 and SR Level-2. The individual questionnaire was applied to individuals aged 15 and over. (TurkStat, 2015, 2019).

Life Satisfaction Survey (LSS) (2014, 2017)

Life Satisfaction Survey has been conducted since 2013 every year by TurkStat. The aim of the survey is to have information about happiness, the satisfaction of the main living areas, the satisfaction of public services and values. Between the years 2003-2012, the sampling was designed to have estimates for Turkey, rural and urban areas. In 2013 for the first time, the sampling size had been calculated to produce estimates on SR-Level 3 in addition to Turkey. Since 2014 the sampling was designed to have estimates for Turkey. The individual questionnaire was applied to individuals aged 18 and over (TurkStat, 2015, 2018).

3.2. Methodology of Time Use Survey

For Time Use Survey methodology, there are mainly two sources as UNECE and Eurostat in the world. "Task Force on Time Use Survey" of UNECE (United Nations Economic Commission for Europe) studies for improving international time use studies. *"Guidelines for Harmonizing Time-Use Surveys"* was disseminated by UNECE Task Force on Time Use Survey. United Nations Development Programme (UNDP) and United Nations Department of Economic and Social Affairs, Statistics Division (UNDESA, UNSD) are also institutions of United Nations which work on and disseminate some sources regarding time use surveys. Another focal point in time use survey is the European Statistical Institute (Eurostat) that also works for international comparable time use studies. Eurostat disseminates *"Harmonised European Time Use Surveys (HETUS) Guidelines"* for European countries. In the guidelines mentioned by UNECE and Eurostat, there are explanations about the aim, concepts, questionnaire design, sampling, mode of data collection, field application, data processing/analysis/dissemination and other related issues (UNECE, 2013; Eurostat, 2019).

3.2.1. Aim of the TUS

The Harmonised European Time Use Surveys (HETUS) are conducted to determine time spent by the individuals on activities like paid work, household and care work, socializing, leisure and travel (Eurostat, 2019).

The aim of the survey is to measure well-being/quality of life, measure and value unpaid work, calculate household production, produce data for policy development in planning. (UNSD, 2005).

By TUS data, information about the division of work between genders can be produced (UNSD, 2018). Time use data gives information about men's and women's spending their time disparately because of gender roles. Paid and unpaid work are unequally distributed between men and women. Women usually have much more responsibility for unpaid work time than men. And women spend much less time on paid work than men. Above Sustainable Development Goals (SDG), target 5.4 is about Time Use survey and the aim of this target is for gender equality, reduction and redistribution of unpaid care work. United Nations Statistics Division (UNSD) compiles 5.4.1 indicator from the national statistical offices' time use survey data and disseminates data on OECD's Gender Data Portal. This indicator shows "the proportion of time spent on unpaid domestic and care work by sex" (OECD, 2018).

3.2.2. Concepts in Time Use Diary

In addition to the various activity durations in a day which are quantitative data, time use diaries give the possibility to have some qualitative data on the social life of the individuals, that is which activities are done, in which hours the activities are done in a day, with whom and where the activities are done in a day, episode sequences, behavior patterns of time use in everyday life, multitasking patterns, episode frequencies in a day by comparing gender, educational level, job, etc. In some countries, subjective well-being data is also collected in the time use survey diaries. It is measured with Time Use Survey either with questions on the time use diaries or with columns in the diaries. With the results, it can be learned that in which activities people feel satisfied, dissatisfied, stressed, tensioned, etc.

In key areas that other data sources aren't enough, time use diary data are necessary for informed policymaking. One of them is "Unpaid work and non-market production". By time use surveys, services produced by the households can be measured. This provides information for measuring the economic contribution of such productive activities to GDP, called household satellite account. Another key area is "well-being" which includes social and leisure time and work-life balance. Quality of life depends on people's everyday activities, their health and education, participation in the political process, the social and natural environment in which they live, and the factors shaping their personal and economic security. In UNECE Guideline, it's stated as "*Time-use data provides the most accurate and quantifiable way of assessing the value of leisure time and social connections, as well as the impact of work life balance on overall well-being*". The third key area is gender equality. Because paid and unpaid work between men and women is distributed in an unequal way, data of time spent on household work and care work are needed for gender analysis. Understanding the activities that women spend time in a day is possible with time use survey. For policy analysis, time use data can be used for determining the situation in terms of gender equality. Other key areas for policy making by time use survey results are health, work, culture and sport, transport, environment and climate, time poverty and policies for specific population groups (UNECE, 2013).

The duration of the activities in the unit of minutes or hours that individuals spend on paid work, unpaid work that includes household chores and care work, self-care and leisure activities are shown in the results of this survey. It has been understood that well-being isn't affected by only income or consumption, it is affected by also time allocation of the individual in a day. As a result, we can improve our knowledge about well-being by this data (OECD, 2018).

Time Use Survey themes can be given under main titles as in the following:

Non-market productivity: By time use survey data, assigning economic value to the unpaid household work that especially housewives do for so much of the day, is possible. Time use survey data is the essential source for records of data not entered in conventional accounting systems. Without time use data, there would be no systematic

record of who spends how much time fulfilling household responsibilities (Michelson, 2005).

Gender roles and household division of labor: Results of great amounts of research about time use study from the 1970s, focused on differential patterns within the household of who spends more time on which household activities, patterns or chains of activities during the day, degrees of multitasking, the identification of home-based work and analysis of implications, the degree of stress accompanying activities by gender, and the importance of family composition (Michelson, 2005).

Everyday life: Time use data put flesh on the body of everyday life, a phenomenon previously difficult to decipher.

For the full-time diaries, there are mainly 4 activity classifications used by countries:

-American Time Use Study (ATUS) classification
-Australian Time Use Activity Classification
-Harmonised European Time Use Survey (HETUS)
-International Classification of Activities for Time Use Statistics (ICATUS)

The ICATUS is a conceptual framework for the classification of activities focusing on the System of National Accounts (SNA) production boundaries to group the various major divisions of activities which are developed by the United Nations Statistics Division (UNECE, 2013). This classification has been suggested for the whole countries in the world. Especially in developing countries use this classification. Due to the aiming of determining the economic values of the activities, in the classification there are more detailed activity codes of unpaid works for they are economically productive activities. Also, the order of the activity list is by the priority of economic activities.

HETUS classification has been suggested for member and candidate European Union countries by the European Statistical Office in guidelines. This classification takes priority to the sociological properties of the activities. As a result, there are more

detailed activity codes on leisure time activities. Also, the order of the activity list is by the priority of hours of the day. ICATUS and HETUS are both international classifications and can be converted to each other. Table 3.3 shows the main activity coding lists in both of them.

Table 3.3. HETUS and ICATUS Activity Classification

ICATUS 2016	HETUS 2018
Employment and Related Activities	0 Personal Care
Production of Goods for Own Final Use	1 Employment
Unpaid domestic services for household and family members	2 Study
Unpaid caregiving services for household and family members	3 Household And Family Care
Unpaid volunteer, trainee and other unpaid work	4 Voluntary Work And Meetings
Learning	5 Social Life And Entertainment
Socializing and communication, community participation and religious practice	6 Sports And Outdoor Activities
Culture, leisure, mass-media and sports practices	7 Hobbies And Games
Self-care and maintenance	8 Mass Media
	9 Travel And Unspecified Time Use

Source: UNSD, 2019

3.2.3. Questionnaire Design of TUS

Household Questionnaire, individual questionnaire, diary and weekly schedule of working time are suggested survey forms by Eurostat (Eurostat, 2019). In time use surveys, diaries are used for collecting data on the activities that the individuals do in a day. For 24 hours, by 10 minutes' time interval, activities done are written to the diary with where the activity is done, with whom the activity is done and whether there is a parallel activity done at the same time with the activity. As a result, time use survey data differ from answers to direct questions in several ways. Their inherent structure takes the form of a matrix, with many kinds of information organized in a series of

rows and columns. This matrix of information is very different from a factual or attitudinal answer to a direct question (Michelson, 2005).

It is suggested to collect time use statistics for 24 hours with a time diary rather than stylized questions. In some countries, with official surveys, time-use data was tried to collect with stylized questions as an alternative to the diaries. In stylized questions respondents are asked to remember the amount of time they spend for a certain activity over a specified time interval, such as a day, week or year (United Nations 2005a: 15). The diary method's content is richer, more diversified and confident than stylized questions. By stylized questions only time used for main activities can be asked, but parallel activities, being with someone else or when the activities are can't be asked, which with the diaries this information can be collected from another point of view, stylized questions have advantages for getting data on activities which have low-frequency and not done every day or every week. How many times the individuals participated in the related activity in a month or a year for example can be produced by the stylized questions that can complement diaries data (UNECE, 2013).

Light diaries are used in the years between the years of TUS applications with full time diaries to have more frequent data in some countries. In a full time diary "the respondents report what activity they were doing, what time this activity started and ended, when they began the day, then next what activity came and so on through the 24 hours of the day" (United Nations 2005a: 15) (APPENDIX-A). By means of full time diaries, more detailed activities which have rich contextual information and more data quality are collected and these written activities are coded later generally. On the other hand, light time use diaries use pre-defined activity categories, the respondents select the activities they were doing from this activity category (APPENDIX-B). The respondents record the time at what time each activity is carried out based on the predefined list. In other words, the 24 hours of the day are allocated to activities by the predefined activity categories" (United Nations 2005a: 15). The main aim to collect a light survey is to get a minimum level of time-use data in the least amount of time for the least respondent burden as possible (UNECE, 2013).

In some developed countries as Canada and Japan, smart devices are used for diary data collection rather than paper and pencil diaries. Mobile applications or web applications are developed for these reasons. This has some advantages as decreasing respondent burden and data processing burden, survey duration, etc. But due to not every individual can use these new technologies, the number of countries implementing this is very limited. In the future, it is obvious that the number will increase (UNECE, 2013).

3.2.4. Sampling of TUS

The scope is the whole population living in private households in the country. Individuals aged 10 and above are suggested to be respondents for the individual questionnaire and the diaries by Eurostat. For the diary days, one weekday and one weekend day are recommended to be filled in by the household members. The weight of a weekday is 5/7 and the weight of a weekend day is 2/7. The diary dates should cover the whole days of the year for being representative. The survey is recommended to be conducted every 12 months of the year due to the seasonal differences of the activities (Eurostat, 2019).

3.2.5. Mode of Data Collection of TUS

The household and individual questionnaires are implemented by face to face interviews. Computer assisted personal interview (CAPI) method is recommended for face to face interviews. The paper diaries are given to the individuals aged 10 and older for them to fill in the diaries, one is a weekday, the other is a weekend day. Then the interviewer collects the diaries after the related week and weekend day by checking the diary contents (Eurostat, 2019).

3.2.6. Field application

In many countries, time use data are usually collected decennially. The reasons for low frequency are that it is expensive to conduct and code full scale time use data and the main characteristics of people's time use habits change slowly (UNECE, 2013). To increase the frequency and to have up-to-date time use data, some countries implement light diaries after 5 years from the conduction of the full diary survey.

3.2.7. Data processing/analysis/dissemination of TUS

While in full time diaries, the respondent writes the activities to the diary with her/his own sentences, in light diaries or smart technology, the respondent selects the activity from the activity list. After the interviewers collect the diaries, the coding process is achieved by the coders with determining where each activity in the diary from the written sentence is assigned an activity code. Similarly, the location of the activity is also coded. So that the activities are standardized.

The average time spent on a specific activity is calculated after data entries. It can be calculated as mean time for the whole persons and as participation time for only the persons who participated in the related activity. Moreover, the participation rate can be calculated as the proportion of the individuals who spent time on the specific activity (Eurostat, 2019).

3.3. Methodology for the Calculation of the Indicators

In this thesis study, for evaluating the data on work-life balance from different sources and TUS diaries, the indicators on work-life balance with TUS diaries, TUS individual questionnaire and other sources were calculated with the data weights and the results were compared and evaluated in a methodological manner under the concepts of paid work, unpaid work, leisure time and time intensity. The calculated indicators also include recommended indicators by UNECE and OECD. These indicators were calculated using the microdata of TUS (2014-2015), HLFS (2014), LFS-Reconciliation between Work and Family Life (RWFL) Module Survey (2018), LSS (2014, 2017), THS (2014), FSS (2016) and ILCS (2014). Only the data of LFS-Work Organization and Working Time Arrangements (WOWTA) Module Survey (2019) data are taken from the statistical tables disseminated by TurkStat. TUS diary data was arranged for having the same variables as other surveys due to the diaries' flexible structure. Because in the other surveys the question is asked with a direct questionnaire that can't be changed.

The calculations were made according to the sub-component of Work-Life Balance from the data sources:

Paid work: TUS diaries and individual questionnaire, HLFS, RWFL Module Survey, WOWTA Module Survey, LSS

Unpaid work: TUS diaries and individual questionnaire, RWFL Module Survey, FSS, THS

Leisure time: TUS diaries and individual questionnaire, FSS, THS, ILCS

Time intensity: TUS diaries and individual questionnaire, WOWTA Module Survey, LSS

Indicator list by subtitles are shown in Table 3.4. by indicator numbers. Totally 36 indicators were grouped under subtitles of paid work, unpaid work, leisure time and time intensity.

Table 3.4. Indicators on Work-Life Balance by Subtitles and Indicator Groups

Indicators on Work-Life Balance			
Paid work	**Unpaid work**	**Leisure time**	**Time intensity**
Ind. Gr.1:Working hours	**Ind. Gr. 3:Care work**	**Ind. Gr. 7: Family time**	**Ind. Gr. 10: Paid, Unpaid Work, Personal Care and Free Time**
1.1.&1.3. Weekly working hours (dif. data sources)	3.1. Child care	7.1. Eating with hh. members	10.1. Time spent on paid, unpaid work, pers. care and free time
1.2. Employees working fifty hours or more **	3.2. Adult care	7.2. Participating social act. with hh. members	10.2. Ratio of all work time (paid + unpaid) to leisure time *
Ind. Gr. 2: Flexible working	3.3. Duration of adult care	7.3. Time spent with family *	10.3 Time spent on personal care and leisure time **
2.1. Persons working on weekends *	3.4. Elderly care	**Ind. Gr. 8: Sports time**	**Ind. Gr. 11: Intensive Time**
2.2. Time spent on work on weekends *	**Ind. Gr. 4: Housework**	8.1. Walking at least 10 min.	11.1. Persons by time intensity
2.3. Working outside normal hours *	4.1. Housework	8.2. Duration of walking	11.2. Activities wanted to spend time on
2.4. Working more in reference week	**Ind. Gr. 5: Help to Other Households**	8.3. Riding bicycle at least 10 min.	
2.5. Changing working hours	5.1. Help to Other Hh	8.4. Duration of riding bicycle	
2.6. Taking one/two hours off during work	**6: Voluntary Work**	8.5. Doing sports at least 10 min.	
2.7. Work proportions by hours *	6.1. Voluntary work	8.6. Time spent on sports	
2.8. Working at home		8.7. Doing sports activities regularly	
2.9. Work under time pressure *		**Ind. Gr. 9: Social activity**	
		9.1. Leisure time activities	
		9.2. Social activities	

*: Recommended indicators by UNECE
**: Indicators in OECD Better Life Index
Source: UNECE Guidelines for Harmonizing Time-Use Surveys (UNECE, 2013);
      OECD Better Life Index (OECD, 2017)

Below, the methodology for the calculation of these indicators were explained in a detailed way, and the results of these indicators are shown in Chapter 5.

3.3.1. Paid Work (Employment)

Under the title of paid work, 12 indicators were estimated under weekly working hours and flexible working subtitles.

Indicator Group 1: Working hours

Indicator 1.1

From TUS Diary in the activity list, the duration of activities of the number "1: paid work" is calculated for employed persons aged 15 and more. For 15+ aged and employed persons, the average duration of activity: 1 is multiplied by 7 for finding weekly working hours. The proportion of the persons working more than 50 hours is calculated also.

In LFS (2014), there are two questions regarding working hours. One of them is about working hours usually worked, the other is about the actual working hours within the reference week. For the employed persons aged 15 and more, the weekly working hours are calculated for both usual working hours and actual working hours within the reference week.

Question about weekly working hours LFS-2014 (Ind.1.1)
-"Time usually worked in one week at the main job" (usual working hours)
-"Weekly actual working hours in the main job within the reference week"
-"Weekly actual working hours in additional work within the reference week"
(Answer: ...... hours)

Indicator 1.2

OECD-Better Life Index includes Work-Life Balance Component. Indicator of *"Employees working long hours"* is an indicator in it and fifty hours was suggested in the index also.

Weekly actual working hours in the main job and weekly actual working hours in additional work are summed up for every employed person aged 15+. Average hours for actual working hours and usual working hours are calculated for all employed persons. The proportion of the persons working more than 50 hours is calculated for both variables also. The average weekly hours and proportion of individuals working more than 50 hours are compared with time use diary results and labor force survey results and the result is commented with possible reasons for the methodologies of the surveys.

Indicator 1.3

The persons who worked at least one hour paid or unpaid to obtain an in kind or cash income in the last week, who had a connection with an income-generating job or the persons who had a workplace or job that he/she was temporarily absent although not working in the last week were taken as employed persons in TUS individual questionnaire. It was seen that the questions for determining the employment status were coherent in these surveys.

Question about weekly working hours TUS-2014-2015 (Ind.1.3)
"How many hours do you generally work in your main job?"
"How many hours do you generally work in your additional job?"

These durations are summed up for every employed person aged 15+. Average hours are calculated for all employed persons and compared with diary results.

Indicator Group 2: Flexible working

In this section, calculation of working on weekends, working outside normal schedules, work flexibility, working at home and work under pressure indicators was explained. In this subject, most questions from different surveys are not appropriate for comparison. Similar ones were brought together in the tables for comparison.

Indicator 2.1

In "UNECE Guidelines for Harmonizing Time-Use Surveys" for Work-Life Balance concept about working on weekends under the heading of "*Non-standard employment working time*", the recommended outputs are "*Proportion of persons who did employment work on weekends*" and *"Proportion of all persons who undertook employment work on weekend days".*

From time use diaries, the individuals who recorded the activity of paid work (employment, activity code: 1) at least once were selected. Above these individuals, the proportion of ones who wrote paid work on their weekend day diary was calculated for the indicator of "Proportion of persons who did employment work on weekends".

For the calculation of the indicator of "Proportion of all persons who undertook employment work on weekend days", the proportion of the individuals who wrote paid work on their weekend day diary to all persons was calculated. The results are shown by sex and commented.

Indicator 2.2

There are also recommended outputs in "UNECE Guidelines for Harmonizing Time-Use Surveys" for outputs in Work-Life Balance concept about working on the weekend under the heading of "*Non-standard employment working time*", which are "*All persons, average time spent undertaking employment work on weekend days"* and *"Average time spent on employment work on weekend days, for persons who undertook employment during the weekend".*

Average time spent on employment work on weekend days for all persons and for the individuals who recorded the activity of paid work from time diaries were calculated for these two indicators. The results are shown by sex and commented.

Indicator 2.3

In "UNECE Guidelines for Harmonizing Time-Use Surveys" for outputs in the Work-Life Balance concept in the heading of "*Non-standard employment working time",* the recommended output is "*Proportion of persons who did employment work outside of normal schedules (e.g. before 8 a.m. or after 6 p.m.)".*

As outside of normal schedules, before 8 a.m. or after 7 p.m. was accepted for our country for this calculation. By time use survey diaries, which show the hours of every activity done, the employed individuals aged 15 and above who worked (activity code: 1) in these unstandardized hours were filtered and the proportion of them to the employed persons was calculated and shown by sex.

Indicator 2.4

In the LFS (2014) survey, if time usually worked in one week at the main job was greater than weekly actual working hours in the main job within the reference week, the following questions were asked to the related persons aged 15 and above:

Questions about working more in reference week LFS-2014 (Ind.2.4)

"How many hours do you generally work in your main job?"

"-Why did you work more in the reference week in your main job than your usual working hours?"
1. Changing working hours (Flexible working)
2. Working overtime
98. Other

The proportion of persons who worked more in the reference week and reasons for it was shown by sex and commented.

Indicator 2.5

To the individuals aged 18-64, the following questions were asked in RWFLS (2018)

Questions about changing working hours RWFLS Module-2018 (Ind.2.5)

-"Can you take whole day off due to your care responsibilities?" (flexibility)
1. Generally possible
2. Rarely possible
3. Not possible
4. Don't know
-"Can you change start or end hours of working hours due to care responsibilities?" (flexibility)
1. Generally possible
2. Rarely possible
3. Not possible
4. Don't know

The proportions of employees who answered as "generally possible" were calculated for determining the flexibility for care responsibilities.

To the employed individuals aged 15 and above the following question was asked in WOWTA Module Survey (2019)

Questions about changing working hours WOWTA Module-2019 (Ind.2.5)

-"Can you decide your start and end hours of your working hours?" (flexibility)
1. Definitely herself/himself
2. Herself/himself with specified limitations
3. Mainly employer or the institution (for waged or casual employee)
3. Mainly clients, works done or legal regulations (for employer or own account worker)

The proportion of persons who answered as definitely herself/himself was calculated. The results are compared and commented on by sex.

Indicator 2.6

Question about taking one/two hours off during working LSS-2017 (Ind.2.6)
"Can you take one or two hours off for personal or family matters during working hours?" – Yes   -No

The proportion of employed persons aged 18 and above who answered as yes to this question was calculated.

Question about taking one/two hours off during working WOWTA Module-2019 (Ind.2.6)
 "Do you have the opportunity of taking a few hours off for personal or family matters during working hours?"
-Very easy –Easy –Difficult –Very difficult

The proportion of employed persons aged 15 and above who answered as very easy or easy to this question was calculated. Because of the microdata of this survey wasn't accessible during this study, the table couldn't be prepared again for making coherent with Life Satisfaction Survey. Instead, the table which was disseminated on TurkStat's web page was used for comparison.

Indicator 2.7

About employment hours there is a proposed indicator in "UNECE Guidelines for Harmonizing Time-Use Surveys" for outputs in Work-Life Balance concept as "Proportion of persons who did employment work (for pay or profit, i.e. were engaged in any activity to produce goods or provide services as part of a transaction in exchange for remuneration payable in cash or in kind) by the hour of the day." This can be obtained from time use diaries. By TurkStat a release of press room was disseminated on 8 September 2016 with the results of Time Use Survey, 2014-2015. The graphic of "Distribution of activities of individuals aged 15 and above by hour of the day" which was disseminated in the press release was shown and commented on.

Indicator 2.8

One definition of work-life balance is the degree to which employed people can keep their work and other activities associated with employment confined to their place in the daily cycle (Fisher and Layte, 2004). Increases in flexible workplaces and working time arrangements (e.g. working from home), and mobile technology have mixed the lines between the start and finish of the working day/night. Work done at home can be used as a measure of the availability of specific flexible working time arrangements; in their absence it can show the extent to which employment intrudes in other activities (UNECE, 2013).

For the activities:1 (employment), the activities which are done at home are filtered from TUS diaries. Place of activity codes (10: At home)

The proportion of employed persons (15+) who work at home (at least 1 register with at home) is calculated. This is evaluated to mean sometimes, generally for coherence with LFS.

Question about work at home LFS-2014 (Ind. 2.8)
 "Do you carry out all or part of your work at home?"
1. Generally
2. Sometimes
3. Never

The proportion of employed persons (aged 15+) who work at home generally and sometimes are summed. Proportions of employed persons who work at home at least once a week are compared.

Indicator 2.9

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Question about work under pressure WOWTA Module Survey (2019) (Ind. 2.9)
"How often do you work under pressure?" –Always -Usually -Sometimes -Never

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The proportion of the employed individuals aged 15 and above who answered as always, usually, sometimes were calculated by sex.

3.3.2. Unpaid Work

Under the title of unpaid work, 7 indicators were estimated under care work, housework, help to other households and voluntary work.

Indicator Group 3: Care work

Indicator 3.1

In the activity list 38: Child care (in the same household) OR423: Child care in another household (own child) OR 424: Child care in another household (another child). The proportion of persons who write one of these activities in the diaries are calculated for total employed and unemployed persons aged 18-64.

There are two questions for the calculation of the responsibility of child care in RWFL Module Survey (2018).

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Question about child care RWFL Module Survey (2018) (Ind. 3.1)
"Is there any child aged less than 15 living with you in your household?" - Yes -No
"Is there any child aged less than 15 living in another household that you take care of?"
-Yes there is, takes care regularly
-Yes there is, takes care sometimes
-Yes there is, never takes care
-No there isn't

</div>

The proportion of persons who have children aged less than 15 living in the same house or take care of children in another household regularly (only this option was selected for a child in another household) are calculated for total employed and unemployed persons aged 18-64. The proportion of persons who take care of children aged less than 15 regularly are compared by sex and employment. The difference is discussed by the methodologies of the surveys.

Indicator 3.2

In the activity list 39: Adult care (in the same household) 425: Adult care in another household. The proportion of persons who write one of these activities in the diaries are calculated for total employed and unemployed persons aged 18-64.

Questions about adult care RWFL Module Survey (2018) (Ind. 3.2)
"Is there any ill or disabled child aged 15 and more living in your household or in another household that you take care of?"
- Yes there is, takes care regularly
-Yes there is, takes care sometimes
-Yes there is, never takes care
-No there isn't
"Is there any old or in need of care adult living in your household or in another household that you take care of?"
- Yes there is takes care regularly
-Yes there is takes care sometimes
-Yes there is never takes care
-No there isn't

The proportion of persons who take care of ill or disabled children aged more than 15 or old/adults need help living in the same house or in another household regularly are calculated for total employed and unemployed persons aged 18-64.

Question about adult care in THS (2014) (Ind. 3.2)
Health Survey (2014): "Do you provide care or assistance to one or more people with some old age problems, chronic health problems or disability, at least once a week?" - Yes -No

The proportion of persons who take care of adults living in the same house or in another household at least once a week is calculated for persons aged 18-64.

The proportion of persons who take care of adults aged 18-64 regularly are compared by sex and employment. The difference will be discussed by the methodologies of the surveys.

Indicator 3.3

In the activity list 39: Adult care (in the same household) 425: Adult care in another household The duration of adult care in a week is calculated for one week by multiplying with 7 for persons taking care of adults from diaries. Then persons taking care of adults for less than 10 hours, 10-20 hours, more than 20 hours are determined. And the proportions of each part are calculated.

Question about duration of adult care in THS (2014) (Ind. 3.3)
"On average, how many hours per week do you provide care or assistance?" (for individuals who stated that they take care for adults)
    1. Less than 10 hours
    2. More than 10 hours and less than 20 hours
    3. 20 hours and more in a week

The proportion of persons taking care of adults for less than 10 hours, 10-20 hours, more than 20 hours are calculated.

Firstly, the proportion of persons who take care of adults living in the same house or in another household at least once a week are compared by sex. Then the proportion of persons taking care of adults less than 10 hours, 10-20 hours, more than 20 hours are compared. According to the results, it is discussed by the methodologies of the surveys.

Indicator 3.4

In the activity list, 392: Elderly care in the same house 425: Adult care in other household. In the time use diaries, the individuals who recorded related activity at least once on weekday or weekend day which means at least once in a week were selected. The proportion of persons who wrote one of these activities is calculated for total elderly care and the proportion for elderly care in the same house is calculated.

Then the frequency of elderly care was asked as once in a month or once in a week. After the selection of the individuals who did elderly care in the last 4 months, the individuals who did elderly care once in a week and more were selected for making comparisons with the diary results.

Proportions for total elderly care and elderly care in the same house are calculated. The results are discussed by different methodologies. (In the diaries, elderly care activity is calculated by elderly care in the same house and adult care in other household. Adult care in another household couldn't be dissociated from elderly care in another household.)

Indicator Group 4: Housework

Indicator 4.1

In the diaries the proportion of men and women aged 15 and more who wrote these activity codes in the diary are calculated: Cooking, Painting the house, Laundry (even if machine available), Paying monthly bills, Basic needlework (sewing, buttons etc.), Serving tea, Ordering/cleaning the house, Laying and cleaning the table, Dishes (even if dishwasher available), Shopping for food and beverage, Basic maintenance and repair, Ironing

In time use survey, the proportions are calculated by male and female individuals aged 15 and more who did housework according to their diaries. But in

Family Structure Survey, in the household questionnaire, the respondent answered the question for the whole household as who does the housework mostly in the family. As a result, the answers aren't comparable. The results are shown for men and women for all surveys. The advantages and disadvantages of them are discussed.

Indicator Group 5: Help another household

Indicator 5.1

In the activity list, 42: help another household. In time use diaries, the individuals who recorded related activity at least once on weekday or weekend day which means at least once in a week were selected. The proportion of whole persons who wrote this activity is calculated.

Question about help to another household TUS Ind. Quest.2014-2015 (Ind. 5.1)
"Did you help for other households in last 4 weeks without any payment? -Yes -No

Then for the persons who did this activity, the number of the activities in the last 4 weeks were asked. To make them comparable with diary results, the persons who did 4 and more in the last 4 weeks were selected similarly. That means about once a week the activity was done on average.

The proportion of persons who do these activities is compared with diary results. The results are discussed by different methodologies.

Indicator Group 6: Voluntary activities

Indicator 6.1

In the activity list, 41: voluntary activities for organizations. In time use diaries, the individuals who recorded related activity at least once in weekday or weekend day which means at least once on a week were selected. The proportion of whole persons who wrote this activity is calculated.

Question about voluntary activities TUS Ind. Quest.2014-2015 (Ind. 6.1)
"Did you do voluntary activities for institution in last 4 weeks without any payment?" -Yes -No

Then for the persons who did this activity, the number of activities in the last 4 weeks was asked. To make them comparable with diary results, the persons who did 4 and more in the last 4 weeks were selected. That means about once a week the activity was done on average.

The proportion of persons who makes voluntary activities about once a week is compared with diary results. The results are discussed by different methodologies.

3.3.3. Leisure Time

Under the title of leisure time, 12 indicators were estimated under family time, sports and social activity.

Indicator Group 7: Family time

Indicator 7.1

In time use diary data, activity code is as "eating" not in the detail of breakfast, lunch or dinner. For calculating the proportions; the eating times for breakfast, lunch and dinner were determined. In the persons who eat food, the individuals who selected with family were chosen.

Question about eating with household members FSS 2016 (Ind. 7.1)
"How often do you eat with the household members in weekdays/weekend days?"
-in the breakfast -in the lunch -in the dinner
1. Always 2. Frequently 3. Sometimes 4. Seldom 5. Never

It is asked to the respondent for the whole family in the household questionnaire as for the frequency of eating together for each eating time. In the time diaries the households with that individuals were selected for being able to compare Family Structure Survey in which the question was asked for the household to the respondent. And with the results, asking way is discussed with the advantages and disadvantages of different methodologies.

Indicator 7.2

For the social activities, with whom columns are searched in diaries. The individuals who recorded related social activity at least once with the household members were proportioned to the individuals who did that activity.

Question about participating to social activities with household members FSS 2016 (Ind. 7.2)
"How often do you participate to social activities with the household members?"
1. Always 2. Frequently 3. Sometimes 4. Seldom 5. Never

In time diaries the households with that individuals were selected for being able to compare Family Structure Survey in which the question was asked for the household to the respondent. The results are compared.

Indicator 7.3

In this subject there are proposed indicators in "UNECE Guidelines for Harmonizing Time-Use Surveys" for outputs in Work-Life Balance concept. In the heading of "*Time spent with family*", the recommended outputs are "*All persons, average time spent on activities with family members*", "*All persons, average time spent on activities with family members without employment-related activities*", "*Average time spent on activities with family members, for persons who did employment work*" and "*Average time spent on activities with family members without work-related activities, for persons who did employment work*"

From the diaries, the average time spent on activities with family members was calculated by using the "with whom" column in the diaries. The activities with the answer yes to "Was your wife with you when you recorded the activities?" or "Was your mother/father with you when recorded the activities?" or "Was any household member below 10 years old with you when you recorded the activities?" or "Was any other household member with you when you recorded the activities? questions were filtered for calculating time spent with family members. This proportion was calculated for persons who did employment work who have the activity of paid work (activity code: 1) at least once in their diaries.

For the calculation of the indicator of "All persons, average time spent on activities with family members without employment-related activities", non-employment activities that were done with family members were filtered. Then the time spent on it was calculated. Lastly, this proportion was calculated for persons who did employment work who have the activity of paid work (activity code: 1) at least once in their diaries.

Indicator Group 8: Sports time

Indicator 8.1 and 8.2

Place of activity code: 34(When a person does an activity, the travel is by walking. The proportion of the individuals aged 15 and more who recorded the activities with the location of the activity of walking were calculated. The duration of walking in a day is calculated for persons who wrote this activity of at least once. Then persons walking in durations of intervals as in health surveys are determined. And the proportions of each parts are calculated.

Question about duration and proportion of walking THS 2014 (Ind. 8.1 and 8.2)
"In an ordinary week, when you go from somewhere to another place, how many days you walk at least 10 minutes?" –Never-… days (For persons aged 15 and more)
"In an ordinary week, when you go from somewhere to another place, how much time do you spend for walking?"
1.10-29 minute in a day
2.30-59 minute in a day
3. More than 1 hour, less than 2 hours in a day
4. More than 2 hours, less than 3 hours in a day
5.3 hours or more in a day

Firstly, the proportion of persons who answered ... days are calculated. Then the proportions of persons walking in the intervals are calculated. The results are compared with TUS results.

Indicator 8.3 and 8.4

Place of activity code: 35 (When a person does an activity, the travel is by riding bicycle) The proportion of the individuals aged 15 and more who recorded the activities with the location of the activity of riding a bicycle were calculated from

diaries. The duration of riding a bicycle in a day is calculated for persons who wrote this activity at least once. Then persons riding a bicycle in durations of intervals as in health surveys are determined. And the proportions of each part are calculated.

Question about duration and proportion of riding bicycle THS 2014 (Ind. 8.3 and 8.4)
"In an ordinary week, when you go from somewhere to another place, how many days you ride bicycle at least 10 minutes?" -Never-… days (For persons aged 15 and more)
"In an ordinary week, when you go from somewhere to another place, how much time do you spend for riding bicycle?"
1.10-29 minute in a day
2.30-59 minute in a day
3. More than 1 hour, less than 2 hours in a day
4. More than 2 hours, less than 3 hours in a day
5.3 hours or more in a day

Firstly, the proportion of persons who answered ... days are calculated. Then the proportions of persons riding a bicycle in the intervals are calculated. The results are compared with TUS results.

Indicator 8.5 and 8.6

In the activity list 612, 613, 614, 615, 616, 619 all sportive activities are taken into consideration. The duration of doing sports in a day is calculated for persons aged 15 and more who wrote the activity of sports at least once. Then durations are calculated for 7 days to find the duration for a week.

Question about duration and proportion of sports THS 2014 (Ind. 8.5 and 8.6)
"In an ordinary week, how many days you do sports, fitness or free time activity at least 10 minutes?" –Never-… days (For persons aged 15 and more)
"In an ordinary week, how much time do you spend for do sports, fitness or free time activity in a week?" ……hours minutes

The durations of doing sports are compared to the persons who do sports.

Indicator 8.7

In time use diaries, the individuals who recorded related activity at least once in a weekday or weekend day which means at least once in a week were selected. The

proportion of persons who wrote the activities of codes which are coherent with the activities asked in individual questionnaire at least once is calculated.

Question about participation to sports TUS Ind. Quest. 2014-2015 (Ind. 8.7)
"Did you participate to sports activities in last 4 weeks?"
-Yes   -No

Then for the persons who did this activity, the number of the activities in the last 4 weeks was asked. For making comparable with diary results, the persons who did 4 and more in the last 4 weeks were selected similarly. That means about once a week the activity was done on average.

The proportion of persons who do these activities is compared with diary results. The results are discussed by different methodologies.

Indicator Group 9: Social Activities

Indicator 9.1

In the activity list, 52, 61. The proportion of persons who wrote these activities at least once are calculated.

Question about leisure time activities ILCS 2014 (Ind. 9.1)
"Do you participate leisure time activities as sports, cinema, concerts regularly?"
1. Yes 2.No Financial difficulty 3.No other reasons

In the income and living conditions survey, all leisure time activities are included in one question as a whole. As a result, this calculation is done for taking into consideration all of them in time use diaries. The proportions of persons who do these activities regularly are compared.

Indicator 9.2

In time use diaries, the individuals who recorded related activity at least once on a weekday or weekend day which means at least once in a week were selected. The proportion of persons who wrote the activities of codes which are coherent with the activities asked in the individual questionnaire at least once is calculated.

Question about participation to social activities TUS Ind. Quest. 2014-2015 (Ind. 9.2)
 "Did you participate to social activities (leisure) in last 4 weeks?"
-Yes   -No

Then for the persons who did this activity, the number of the activities in the last 4 weeks was asked. For making comparable with diary results, the persons who did 4 and more in the last 4 weeks were selected similarly. That means about once a week the activity was done on average.

The proportion of persons who do these activities is compared with diary results. The results are discussed by different methodologies.

3.3.4. Time intensity

Under the title of time intensity, 5 indicators were estimated under paid, unpaid work, personal care, free time and intensive time.

Indicator Group 10: Paid, Unpaid Work, Personal Care and Free Time

Indicator 10.1

Average time spent on paid work (activity code: 1), unpaid work(activity code: 3, 4.1, 4.2), personal care (activity code: 0) and free time (activity code: 5,6,7,8) is calculated for all persons (aged 10 and above) by sex and employment status from time use diaries. The total workload is calculated by summing up paid work and unpaid work for all persons. The results are compared and evaluated to see the time spent on different activities and total workload for different employment status and sex groups.

Indicator 10.2

The proposed indicator in "UNECE Guidelines for Harmonizing Time-Use Surveys" for outputs in Work-Life Balance concept which is in the heading of "Time Crunch", is "*All persons, ratio of all work time (employment + unpaid) to leisure time including primary and secondary activities.*" The time crunch is used for intensive time pressure. This indicator is a key indicator for reflecting work-life in a holistic way.

From time diaries, by dividing all work time (paid work + unpaid work) to leisure time, the proportion is calculated by sex and employment status. The results are compared to understand the time stressed groups.

Indicator 10.3

The proposed indicator in OECD-Better Life Index, Work Life Balance Component is *"Time devoted to leisure and personal care"*.

From time diaries, personal care and leisure time is summed up for calculating total time spent on personal care and leisure time and shown in the table by sex and employment status. The results are compared to understand the groups that have the most and least time for relaxing and enjoying time.

Indicator Group 11: Intensive Time

Indicator 11.1

Questions about intensive time TUS Ind. Quest. 2014-2015 (Ind. 11.1)
"When you consider the things you do daily, which often intensive are your jobs?"
Never intensive
Monthly or less intensive
Few times a month intensive
A-two days on weekdays intensive
Every weekday (Monday-Friday) intensive
At the weekend intensive
Every day of the week intensive
"Do you think frequently, that you can't do the activities you want to do on weekdays and haven't enough time for this?" –Yes   -No

The proportion of the individuals aged 18 and above who answered the first question as "every day of the week intensive" and the second question as "Yes" was calculated by the main characteristics of the respondents as marital status, education status, employment status and sex.

Question about intensive time LSS 2014 (Ind. 11.1)
"Are you satisfied with the time that you allocate for yourself?"
-Very satisfied -Satisfied -Neither satisfied nor unsatisfied -Unsatisfied -Unsatisfied at all

The proportion of the individuals aged 18 and above who answered as "unsatisfied" or "unsatisfied at all" was calculated by the main characteristics of the respondents as marital status, education status, employment status and sex like time use survey results.

The results of both surveys were compared and commented on.

Indicator 11.2

Question about activities wanted to spend time on TUS Ind. Quest. 2014-2015 (Ind. 11.2)
"If you could do, with which activity would you want to spend time mostly?"
Personal care (sleeping, eating, dressing, bathing etc.)
Working at a job
Continuing education (school, course, lesson etc.)
Household and family care (food preparation, house cleaning, child care etc.)
Volunteer work and meetings (private individuals, associations, clubs, etc.)
Social life and entertainment (visiting relatives, theater, cinema etc.)
Resting and vacation
Sports
Hobbies and games
Mass media (reading books, watching TV, listening to the radio etc.)
Travelling
Other (Please specify)

Distribution of the activities which are wanted to spend time mostly by individuals who don't have enough time in weekdays by sex was calculated and shown.

3.4. Recommended Indicators for Measuring Work-Life Balance

OECD constructed an index called Better Life Index that was aimed to enable measuring well-being and comparison of the results across countries. It includes 11 topics on the areas of quality of life and material living conditions. The topics are housing, income, jobs, community, education, environment, civic engagement, health, life satisfaction, safety and work-life balance. These indicators give more than economic statistics as GDP. The two indicators on work-life balance which are "Employees working long hours" and "Time devoted to leisure and personal care" are recommended for consideration. For the first indicator, the percentage of employees working fifty hours or more on average in a week was calculated for the countries from

the source of LFS. For the second indicator of time devoted to leisure and personal care, the average number of hours per day spent on leisure and personal care including sleeping and eating was calculated for the countries from the source of TUS (OECD, 2017). In this index, it is understood that time devoted to unpaid work which was part of the total workload wasn't taken into account for the calculation of the work-life balance topic.

UNECE also recommends to use work-life balance indicators available from TUS data for the countries in informing and developing new policies for work-life balance. These indicators are needed for measuring work-life balance for the policies. In some indicators TUS is the only source in terms of accuracy, in others TUS produces more relevant results than the other data sources and obtains information on time spent. Most of these indicators can be obtained by contextual information as to when, where, with whom in TUS diaries in addition to activity information. The indicators are for the population who did that activity and for the whole population whether they did or did not do it as proportions and average time spent on that activity. In the other sections of the calculations of these indicators were explained (UNECE, 2013).

The recommended outputs on work-life balance by UNECE and OECD together are listed in Table 3.5. This table shows the opportunity of the diaries' different data collection methodology for the production of a great variety of indicators on the work-life balance.

Table 3.5. Recommended indicators of work-life balance

Thematic areas	Indicators	Source
Employment	1.1 Proportion of persons who did employment work (for pay or profit, i.e. were engaged in any activity to produce goods or provide services as part of a transaction in exchange for remuneration payable in cash or in kind) by hour of the day	UNECE
	1.2 Proportion of persons who did employment work, who undertook secondary activities simultaneously	
Non-standard employment working time	2.1. Proportion of persons who did employment work outside of "normal schedules" (e.g. before 8 a.m. or after 6 p.m.).	UNECE
	2.2 Proportion of persons who did employment work on weekends	
	2.3 Proportion of persons who did employment work performing noncontinuous work	
Time crunch	3.1 Proportion of all persons who feel stressed most or all of the time	UNECE
	3.2 All persons, average proportion of time when more than one activity undertaken concurrently	
	3.3 All persons, ratio of all work time (employment + unpaid) to leisure time including primary and secondary activities.	
Breaks from employment work: job time/non-job time	4.1 Average time spent on all types of breaks from employment work (by type of break (e.g. lunch; morning/afternoon tea) for persons who did employment work	UNECE
	4.2 Average continuous working time between breaks taken, for persons who did employment work	
	4.3 Average time spent on non-productive activities in employment by type of pause/break/activity for persons who did employment work	
Intrusion of employment work into other activities	5.1 Average time spent undertaking employment work at home or during travel for persons who did employment work	UNECE
Weekend employment work	6.1 Proportion of all persons who undertook employment work on weekend days	UNECE
	6.2 All persons, average time spent undertaking employment work on weekend days	
	6.3 Average time spent on employment work on weekend days, for persons who undertook employment during the weekend	
Time spent with family	7.1 All persons, average time spent on activities with family members	UNECE
	7.2 All persons, average time spent on activities with family members without employment-related activities	
	7.3 Average time spent on activities with family members, for persons who did employment work	
	7.4 Average time spent on activities with family members without work-related activities, for persons who did employment work	
Better Life Index	8.1 Employees working long hours	OECD
	8.2 Time devoted to leisure and personal care	

Source: Guidelines for Harmonizing Time-Use Surveys (UNECE, 2013), Better Life Index (OECD, 2017)

CHAPTER 4. METHODOLOGICAL COMPARISON OF THE SURVEYS

In this chapter, methodological comparison of the data sources that produce data on work-life balance will be shown for the whole processes of the quantitative research as aims, concepts, questionnaire design, sampling, mode of data collection, field application and data processing/analysis/dissemination. Primarily; differences between other surveys and TUS methodology will be examined and the advantages and disadvantages of TUS diaries will be discussed.

4.1. Aim of the survey

Even the mentioned surveys that used in this study produce data on work-life balance, they have different aims. LFS and ILCS focus on labor force and income, THS focuses on health, LSS on satisfaction and FSS on family life. On the other hand, this information can be obtained from TUS by its multidisciplinary approach. None of them except RWFLS Module-2018 were designed to give data on work-life balance. For the reason that TUS is interested in time spent for whole spectrum of activities due to the structure of time diaries, it produces richer data on work-life balance than other data sources.

4.2. Concepts

By stating work-life balance, many dimensions of life are included such as work times, housework, entertainment, family life, sports, time intensity, etc so that it can be defined as multidimensional. By measuring work-life balance, the contributions of different methodology of data collection of TUS according to the contributions of other surveys will be evaluated.

For determining work-life balance components, the meaning of it was considered that is balance between work and leisure time, socializing and relaxing. Work consists of paid and unpaid work. Work-life balance is related with free time that people can control it, so time intensity is critical for balance of needs. When the data sources were examined in this framework, after the evaluation of sub-categories of work-life balance measurement, the topics in Table 4.1 were determined as key components for evaluating and comparing the results of related data sources. While

paid work has the aim of gaining income, in return of unpaid working people don't gain any money.

Table 4.1. Selected titles of Work-Life Balance Measurement

Paid work (Employment)	Working hours Flexible working
Unpaid work	Care work Voluntary work Housework Help to other households
Leisure time	Family time Sports time Social activity
Time intensity	Time intensity Paid,unpaid work, leisure time and personal care activities

In time use diaries, data for all of the activities done in 24 hours according to activity classification can be produced, as time spent on leisure time, paid work or leisure time which includes sports time. In which detail of activity the user wants to see, both sports time and leisure time can be calculated. Moreover, there are context variables as with whom/where/when for all activities that results in production of variability of WLB indicators, as participation to social activities with family members.

On the other hand, in other surveys there is only information for the concepts asked in that questionnaire. Examples to this can be given as sport concept in health survey, family time concept in FSS, working hours' concept in LFS, care responsibility in LFS-module, flexible working in work organization and working time arrangements module survey, time allocated to themselves in LSS or leisure activity in ILCS. As a result, very limited data can be accessed from the questionnaires differently from time diaries.

In time use diaries, there are 108 detailed activities. These activities are classified in 10 main activity titles. Proportions or durations for the main or detailed activities can be both calculated alternatively. As an example to this, while "education of child[2]" is a detailed activity "child care[3]" is a more general activity title that includes education of child activity. "Household and family care[4]" is the main activity title that includes both of them. Whatever we prefer, we can calculate time spent for all of them separately (TurkStat, 2016). For this result, number of indicators that can be resulted from time diaries is large and we can calculate all the results whatever we prefer in our studies. This gives a great flexibility when using TUS data contrary to the other surveys that have standardized questions.

4.3. Questionnaire design

Survey instrument is the instrument by which the data is collected. Kinds of survey instruments are survey questionnaire, interview schedule, showcards, observation, direct measures, and diaries (Neuman, 2014). The survey instruments of TUS are household questionnaire, individual questionnaire and time use diaries (TurkStat, 2016). By time use diaries, data on time use is collected and this instrument is a different instrument than classical direct questionnaire used in other surveys. In diary method, instead of question and answering, respondents fill one-week day and one weekend day diaries with the activities that they do in 24 hours by 10 minutes' interval. Due to the matrix structure of the diaries, for each activity there are columns of parallel activity, where, with and whom columns (Eurostat, 2019). As a result, it gives the possibility of having rich information about the life of the individuals.

Differently from TUS diaries, survey instruments in other surveys are stylized approach as questionnaires. In direct questionnaires, the question is asked and the answers are collected in options as close ended questions or for some questions they are collected in open ended questions as the total duration for doing sports in a week

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[2] 382: Education of child
[3] 38: Child care
[4] 3: Household and family care

asked in health survey. This kind of data collection is mostly referred as stylized approach.

On the other hand, in time diaries the respondent writes whatever activity s/he does in 24 hours with her/his own words to the diary from 04:00 in the morning to 03:50 in the evening. The time intervals are for 10 minutes but the respondent can write the activity according to the duration of it as 3 hours or 20 minutes. In addition to the duration of the activity, the starting and ending time is determined for every activity due to the structure of the diaries. Whether the person does parallel activity in the same time with the main activity, s/he writes it with her/his words similarly. Additionally, in the diaries, for each different activity; information on where the activity is taken place and with whom it's done is collected. The place of the activity is collected similarly to the activities as written with her/his own words. But with whom information is taken in answer options as alone or with another household member in details (Eurostat, 2019) (APPENDIX-A).

This difference in the questionnaire design influences the data quality. While in TUS diaries, the respondent is filling the diary activities in that day, in other surveys the participation to the activities is asked for last 4 weeks or last 4 month or in a week or in a day. This is important for evaluating the answer quality as bias of low recalling effect. There can be recalling effect in stylized questionnaires differently from the diaries according to literature. In literature there is information on the advantage of time use survey diary's low recalling effect for recording the activity after just doing the activity.

For example, in LFS, the working hours are asked for one week or in health survey the duration of unpaid adult care work is asked for one week. In other questions, they can be asked for one month also. There is a high possibility that the respondents may not remember the total hours for these activities for one week or long time interval. On the other hand, in time diaries the respondent is expected to fill in the diary after just s/he finishes an activity. It's understandable that diaries have a better data quality for revealing more accurate time spent for an activity.

Moreover, in literature it's stated that bias of social desirability effect decreases in time diaries for the reason that s/he has to write all the activities for total 24 hours in the diary. This gives results about participated activities in a more realistic way than direct questions asked by the interviewer to the respondent.

In the questionnaires, mostly the participation to an activity is asked that gives the results as the proportions of the individuals doing that activity. On the other hand, from time diaries both proportion of persons doing that activity and time spent for that activity can be produced. Proportion of the persons are calculated whether the respondent did that activity at least once in week day or weekend day diary that can be commented as s/he does that activity at least once a week. Average time spent in a day for the activity is calculated from the total durations of the activity in week day and weekend day with their weights. Time spent can also be calculated according to where and with whom the activity is done in addition to the information when the activity is carried out. These all characteristics of the diaries give a great advantage on measuring work-life balance that is closely related with family time, when is working hours and where it's conducted.

For the activities that were done irregularly or infrequent as a habit achieved for example once a month, the stylized question has the advantage for collecting the information regarding that habit. Because by the questionnaire, the participation to the activity can be asked for last 4 weeks as in TUS individual questionnaire. On the contrary, these irregular/infrequent activities may not disappear in the diaries for the fact that only for one week (one week day diary and one weekend day diary) activities done are recorded. This is the disadvantage of TUS diaries.

The activity list used in TUS, 2014-2015 is shown in Table 4.2. There are 10 main activity headings and 108 detailed activities in 3 digits (TurkStat, 2016).

Table 4.2. Sub-Headings of Basic Activity Code Titles (As in Microdata Set of Turkstat TUS 2014-2015)

0 Personal Care	5 Social Life And Entertainment
01 Sleep	51 Social Life
02 Eating	52 Entertainment And Culture
03 Other Personal Care	53 Resting — Time Out (Free Time)
1 Employment	**6 Sports And Outdoor Activities**
11 Main Job And Second Job	61 Physical Exercise
12 Activities Related To Employment	62 Productive Exercises
2 Study	63 Sports Related Activities
20 Unspecified Study	**7 Hobbies And Games**
21 School Or University	71 Arts And Hobbies
22 Free Time Study	72 Computing
3 Household And Family Care	73 Games
30 Unspecified Household And Family Care	**8 Mass Media**
31 Food Management	81 Reading
32 Household Upkeep	82 TV, Video And DVD
33 Making And Care For Textiles	83 Radio And Music
34 Gardening And Pet Care	**9 Travel And Unspecified Time Use**
35 Construction And Repairs	90 Other Or Unspecified Travel
36 Shopping And Services	91 Travelling To Or From Work
37 Household Management	92 Travelling To School / University Or From School/University
38 Childcare	93 Travelling Related To Shopping / Child Care / Household Care
39 Help To An Adult Family Member	94 Travelling Related To Voluntary Works And Meetings
4 Voluntary Work And Meetings	95 Travelling Related To Social Life
41 Organizational Voluntary Work	96 Travelling Related To Other Leisure Time
42 Informal Help To Other Households	98 Travelling Related To Changing Locality
43 Participatory Activities	99 Filling Diary Of Tus/ Unspecified Leisure Activities / Other Unspecified Time Use

Source: TurkStat, 2016

In the studies that focus on stylised (questionnaire and answers based) estimates in other surveys and diary-based estimates in time use survey can be resulted in a different manner because of different data collection methodologies. For example, Budlender's (2007) study presents rich information about the methodology of TUS. The measurement of unpaid care work by different data collection methodologies were aimed to research from TUS data of the selected countries. Time spent on the activities

were obtained in two different ways one of which is by stylized approach (questionnaire and answers), the other is by full diary approach in these countries. Due to contextual difference between the type of surveys, the data quality could be better in diaries for the reason that in full diaries the respondent records the activities with her/his own words, while in stylized questionnaires the respondent may misunderstand the content, the details of the activity when asked by the interviewer. Classification of activities in diaries present large number of activities, on the other hand in stylized questionnaire the activities are asked fewer categories, that results in poor quality. In diaries there is contextual variables in addition to the activities as location and who with. These give rich data regarding the activities as child care at home or somewhere else, activities with children records for the responds who forgot to write the child care activity. Due to type of surveys, social desirability effect can occur in stylized questionnaires for the respondent may exaggerate the activities that s/he thinks that activity is popular or understate them if s/he thinks is unpopular opposite to the diary recording method. Because of the questionnaire design, the respondent might have a difficulty to calculate total time spent for an activity in a week especially in scattered activities. In the diaries, there is not such a problem. The advantage of the stylized questionnaire is that it has less questions and it needs less time to get data from the respondents according to the diaries. The analysis of the data is also easier than diaries. Period of time in the survey also effects the data quality in questionnaire administration. If the time between the activity and recording/telling it is longer, the respondent will have memory problem in recalling them. In self-administered diaries the respondent is required to record the activity just after the activity finished. As a result, in stylized questionnaire there will be low recalling effect opposite to the diaries. In dissemination of TUS by diary method, the time spent of an activity can be given for the individuals who did that activities or it can be given for all the persons whether s/he did or did not that activity. This matters for the infrequent activities as caring for ill persons rather than frequent activities as sleeping and eating. Both results are accurate and can be given for different situations. For the recommendations, Budlender discusses that TUS may be added as a module to another survey or it can be combined to LFS (Budlender, 2007).

In the study of Stewart (2014), the average weekly work hours were compared between the surveys of Current Population Survey, Current Employment Statistics Survey and American Time Use Survey by the US Bureau of Labor Statistics (BLS). The hours were different between them but qualitatively similar behavior of work hours were observed. When comparing the results, the work hours obtained from TUS were seen as more accurate estimates than the other two surveys because of decreasing of bias of recall due to diaries. Additionally, with the diaries, bias of social desirability decreases due to the obligation of writing the activities total 24 hours in the diary. As a result, TUS is beneficial for validation of data of other household surveys. But because of its sample size is low and it is conducted infrequently, it can't be used as the primary source of working hours' data (Stewart, 2014).

The time spent on paid and unpaid work collected by questionnaire was compared by the time spent collected by Danish time use diaries. Paid work is collected by registers and LFS. But unpaid work is mostly collected by time use diaries. Danish Time Use Survey 2001 was used for this study (Bonke, 2002). When looking at the results, it was seen that time spent on paid work was very similar by questionnaire and diaries. On the other hand, time spent on unpaid work was underestimated from the questionnaire. That means the time spent on unpaid work with the questionnaire was smaller than the time use diary data. The difference for women is larger than men. The answers given to questionnaires are influenced by the attitudes and norms. Moreover, the reason for larger difference in unpaid work according to paid work can be due to the fact that unpaid work consists of many short works in it. In conclusion, the results change according to paid work and unpaid work on the differences between diaries and questionnaires. For some situations questionnaire implementations are feasible and reliable. Thus they enable production of comparable time use data and questions on time use could be added in other surveys. But the distribution of time within different populations still need usage of time use surveys (Bonke, 2002).

Time spent on houseworks measured by diary and stylized questionnaires were compared in another study. From the same respondents the data was collected in Home

Online Study (1999 – 2001), which was a British household survey. The difference between the results from two data sources was smaller in women and it was considered as women record stated the results more accurately than men. Duration of housework as secondary activity affected the difference between the results of women. Having children increased the difference for both women and men. Men stated more time spent for housework in questionnaires than diary results. Men spending more time on housework's situation was opposite of this. In summary, it was considered that systematic errors occurred in questionnaires. Combining diary and questionnaire was suggested for increasing accuracy of questionnaire for time use statistics (Kan, 2006).

Hirway (2007) studied on time use survey for estimates of work force. Since the activities are collected for 24 hours in the diary, workforce data can be produced by the diaries in a more reliable way than Labor Force Survey. Methodological biases can remove by the time diaries with a proper activity classification. Moreover, time use data is given always with the contextual variables as where, with whom. It's impossible to produce these outputs from the other surveys. TUS has advantages on collecting data for informal employment. But since it's difficult to use TUS as the main data source for informal employment, TUS can be used additional to the Labor Force Survey, can be modular survey in Labor Force Survey.

Kitterod and Lyngstad studied on comparison of housework times collected from questionnaires and Norway TUS diaries. Even TUS has been considered as the best method to collect data on unpaid work, other methods were analyzed to get data for it since TUS is a costly and infrequent conducting study in Norway. Generally estimates on time spent for housework from questionnaires were larger than diaries, the difference is affected by the age group. It was explained that due to social desirability the results could be over reported if the respondent thinks that s/he has to do much housework. For the reason that in Norway, women generally don't feel that for decreasing social norms regarding the role of women in housework, the results could be by less over reporting. In the results, medium differences were found, but age group affected the diffference. In the conclusion section, the advantages and disadvantages of time use diaries were explained (Kitterod and Lyngstad, 2005).

The results of Germany TUS diaries and questionnaire on many subjects were compared to evaluate whether questionnaire can substitute time diaries by Schulz and Grunow. The results of the two data sources were found consistent (Schulz and Grunow, 2012).

It was seen that there are some differences between time use survey results and other survey's data (Bianchi; Milkie; Sayer; Robinson, 2000). According to the study, domestic work hours excluding childcare and shopping has declined steadily since 1965 from time use data of representative samples of American adults. This is mostly because of women's housework hours decreasing by half since the 1960s. The reason of 12 hours per week decline of about half of women is due to more labor force participation of women that women married later and got fewer children. On the contrary, it was seen that the duration of housework done by men doubled compared to the past on housework during these years. From data of National Survey of Families and Households, similar results about gender differences were observed with 50% higher figures than time use survey data. When looking at the regression results analysing factors on women and men's housework hours, it was seen that "time availability and relative resource models of household production" are more effective than gender approach (Bianchi; Milkie; Sayer; Robinson, 2000).

The focus in Erkip's (2006) study was on the methodology and the results of Turkey, TUS-2006. This study aimed to evaluate the characteristics, uses and problems of the survey in terms of Turkish culture. In the study there were some critics, opinions and evaluations for the 2006 application. It's stated that filling the diary for 10 minutes' time interval is difficult for many respondents. Instead of using full diaries, simpler design was proposed for reliable results in the study. Light diaries or face to face interviews were suggested instead of self-recording of the diaries. Stylized questionnaires could be added to the diaries. It was stated that location of the activities data was ignored by the researchers. It can be used for space planning. Also recording the feelings for the location of the activities would be very beneficial (Erkip, 2006).

4.4. Sampling

Sample distribution and size: All surveys have different sample distributions, sample sizes and estimate sizes in accordance with their aims and representativeness as shown in Table 4.3.

Table 4.3. Sampling Information of the Data Sources

Survey Name	Sample size	Estimation size	Observation unit
TUS (2014-2015)	9 073 hh 25 109 ind.	Turkey	Ind. aged 10+
LFS (2014)	150 057 hh 393 822 ind.	Periodically Turkey, annually NUTS Level 2	Ind. aged 15+
LFS-Module (2018)	37 380 hh 74 362 ind.	Periodically Turkey, annually NUTS Level 2	Ind. aged 18-64
LFS-Module (2019)	36 881 hh 40 844 ind.	Periodically Turkey, annually NUTS Level 2	Employed ind. aged 15+
THS (2014)	9 740 hh 19 129 ind.	Turkey	Ind. aged 15+
LSS (2014)	3 908 hh 7 984 ind.	Turkey	Ind. aged 18+
LSS (2017)	4 790 hh 9 876 ind.	Turkey	Ind. aged 18+
ILCS (2014)	24 554 hh 60 525 ind.	Turkey, NUTS Level-1 and NUTS Level-2	Ind. aged 15+
FSS (2016)	17 239 hh 35 475 ind.	Turkey, NUTS Level 1 (12 geog. regions) and three major province level (İstanbul, İzmir and Ankara)	Ind. aged 15+

Source: TurkStat, 2015, 2016, 2017, 2018, 2019

LFS with its modules, ILCS and FSS have larger sample sizes and produce estimates on NUTS Level 1 or 2. On the other hand, THS, TUS and LSS have smaller sizes and produce estimates for Turkey. The largest sample size belongs to LFS (2014) which is conducted regularly and every month. This gives the survey a great advantage on data quality, data availability and currency. LSS's sample size is the fewest among

them which is conducted only in one month in a year. These differences in sample sizes and sampling distributions make a difference when comparing their results with each other. While LFS is conducted every month, LSS and ILCS are performed every year. THS is conducted with two years' interval, FSS with 5 years and TUS with 10 years. This gives TUS a major disadvantage for data availability and currency.

When the observation units are compared; it's seen that in TUS the respondents had the minimum age which is 10 and older different from the other surveys that have observation unit of individuals aged 15 or 18 and older. In this respect; TUS has the advantage of producing information belonging to children and young persons aged 10-17 which is also important for work-life balance measurement.

4.5. Mode of data collection

Different types of data collection modes such as face to face interviews, self-administered questionnaires, mail surveys, telephone interviews, and web survey are selected based on the design of the surveys. Telephone interviews are conducted as computer-assisted telephone interviewing (CATI) or interactive voice response (IVR). Face to face interviews are conducted as paper and pencil interview or as computer-assisted personal interviewing (CAPI) (Neuman, 2014).

While in other surveys use face to face interviewing by CAPI method, mixed mode was used in TUS. In the household and individual questionnaires CAPI method was applied and in the diaries self-administered paper-pencil diaries were filled for 24 hours. Every respondent records her/his activities in detail for 10 minutes' interval to the time diary for 24-hours (TurkStat, 2016).

The mode of data collection influences the data quality of the mentioned surveys For example, in the data collection methodology for quantitative research, there can be social desirability bias in interviewer administered, while in self-administered mode, social desirability bias is avoided. Social desirability effect occurs in face to face interviews due to it requires a social interaction between the respondent and interviewer especially in sensitive questions (Saraç, 2016). Social desirability

occurs for the reason that the respondent doesn't give her/his real opinions for desiring to look in a better way to the interviewer (Fisher, 1993). Social desirability effect can change by sex due to the social norms and expectations from female and male are different. Thus, it can be concluded as other surveys have the disadvantage of social desirability bias differently from TUS diaries in data quality.

On the other hand, in self-administered mode there are disadvantages associated with lack of interviewer presence as item missing data. It is stated that in CAPI method, the presence of interviewers has a positive effect as low missing data (Neuman, 2014). From this point it can be concluded that in opposite to the face to face interviews, there is the possibility of not writing every activity to the diary whether the respondent did that activity due to self-administered mode of diary filling. After the diary day, the interviewer collects diaries by checking the content of the diaries by asking questions to the respondent, this decreases this mode's disadvantage. There is some literature on this subject that compares the methodology of TUS diaries and face to face interviewing.

4.6. Field application

In field application, there is difference between TUS and other surveys as in most stages in survey methodology. While the questionnaires in the other surveys are applied by face to face interview in a visit, in TUS for collecting and checking the content of weekend and week day diaries, generally 3-5 interviews are carried out. The other difference is that, after collection of the diaries, data is entered by coding activities and place of activities to web application. In the other surveys, data entry is done to the desktop during the interviewing by CAPI (TurkStat, 2015, 2016, 2017, 2018, 2019, 2020). The details regarding field application is given below:

For all the surveys, as TurkStat's standard application; official letters and brochures were sent to sample households before the start of the survey. In the contents of official letter and brochure, there were purpose of the survey, importance, confidentiality and mandatory items, usage of the results and application method (TurkStat).

In TUS (2014-2015); interviewers fill household questionnaire by asking the household member who can give information on the household and aged 18 and over. Interviewers apply individual questionnaires to the all household members aged 10 and over. Household and individual questionnaires were filled face to face via Desktop (CAPI). For diary recording process, diaries are given to individuals aged 10 and older. They filled the diaries for 2 days, one in a "weekday", one in a "weekend day" determined before. In a day activities were recorded for 24 hours and at 10-minute-slots. The interviewer collects and checks the diary content. The number of the different activities reflects the data quality in TUS. Coding process was made during data entry. All individuals in household filled the diaries for same days. When the sample household was irresponsive for the interview, no substitution was used. If for the determined day, the individual/s couldn't fill the diary, the diary filled day was postponed to 7 days later. (For the same day of the week.) Field application period of TUS is August 1, 2014 - July 31, 2015. This survey is conducted decennially (TurkStat, 2016).

Family Structure Survey (2016) was applied in the period of June 1 – September 26, 2016 and it's conducted in 5 years' time interval. In Labor Force Survey (LFS) whole weeks of the year have been used as the reference period. The field application starts after the reference week and is completed within 15 days. LFS is conducted regularly. The LFS modular survey Reconciliation between Work and Family Life was conducted with LFS (2018) in the months of April, May and June in 2018 and modular survey Work Organisation and Working Time Arrangements was conducted with LFS (2019) in the months of April, May and June in 2019. Turkey Health Survey was applied in the period of August-October 2014 and it's conducted with 2 years' interval. Income and Living Conditions Survey was conducted from April to July in 2014, which is conducted every year regularly. Similarly, Life Satisfaction Survey is conducted every year regularly in the month of November (TurkStat).

4.7. Data processing/Analysis/Dissemination

While in other surveys, CAPI is used for data collection and only data editing/control is achieved after field application, in time use diaries, the respondent fills the diaries by her/his own sentences, after collecting the diaries, the interviewer gives codes for every activity/location of activity from the activity list (TurkStat).

For the coding process, HETUS guidelines were based upon for international comparable data. In HETUS Guidelines, 3-digit activity codes were listed, and countries had the opportunity to develop the code digits according the country's requirements. Classification of activities was developed in 5 digits by TurkStat, to the number of about 1 200 different activity codes. Other data written on the diaries are also entered to the web application (TurkStat, 2016). Coding process is an important part of TUS survey methodology that effects data quality.

In other surveys, the proportion of the answers are disseminated from the questionnaire data, only if the durations are asked in the surveys, time spent on that activity can be calculated as in weekly working hours in labor force survey or duration of sports in a week in health survey. On the other hand, in time use diaries, both the proportions of the persons participating to the activity and the durations for the activities can be given. Average time spent on an activity can be calculated from the data of all respondents whether s/he did or not that activity. It can be calculated also only for the respondents who did that activity which is also called participation rate of that activity.

In TUS, activities are written to the diary with where the activity done, with whom the activity done and whether there is the parallel activity done at the same time with the activity. Its structure takes the form of a matrix, with many kinds of information organized in a series of rows and columns. We can have information about the durations of work-life balance components as durations of paid work, unpaid work, leisure time and personal-care time in a day. Moreover, for every activity where it is done and with whom the activity is done information is possible with the matrix form of time use diaries. Although multiple activities at the same time is a very critical point

in work-life balance, since in the microdata set of TUS (2014-2015) there isn't parallel activities, that indicator wasn't taken into account.

CHAPTER 5. ANALYSIS AND FINDINGS

In this chapter, the indicators calculated from the surveys that produce indicators on work-life balance were represented. Work-life balance indicators were shown under the headings of paid work, unpaid work, leisure time and time intensity obtained from TUS (2014-2015), LFS (2014), RWFL Module Survey (2018), WOWTA Module Survey (2019), LSS (2014, 2017), THS (2014), FSS (2016) and ILCS (2014).

To see the advantages or disadvantages of different data collection methodology of time use diaries according to the standard data collection methodology of the mentioned surveys, the comparable indicators with TUS diaries were given in the tables. The results from TUS individual questionnaire were also represented due to its standard direct questionnaire method different from TUS diaries. Moreover, work-life balance indicators recommended by UNECE and OECD were calculated and represented.

The indicators about work-life balance were calculated for females, males and all. Time Use Survey diary data was arranged for having the same variables with other surveys. Because in time use survey diary data, there is contextual information for each of the activities that contribute to enriching indicators produced by making the diary data flexible.

Aims, data collection methods, sampling sizes and sampling distributions of the data sources are different from one another. Accordingly, data quality of each of them is different and each has strengths in different concepts. In the analysis, our focus is to see how TUS diaries contribute and correspond to each different topic of work-life balance and how its different methodology of data collection and questionnaire design affects the data quality and results.

5.1. Paid work (employment)

Results on the paid work which is a critical part of Work-Life Balance concept are represented by descriptive analysis under the headings of working hours and flexible working. Flexible working section includes working at weekends, working at home, working outside normal schedule, working flexible and working under pressure. The indicator numbers are determined to be the same as the ones in Chapter 3.

Indicator Group 1: Working hours

Working is used as paid work which has the aim of gaining income in these tables. Time spent on work hours has been a useful indicator for measuring work-life balance. Because it shows the remaining time for enjoying time with the income earned from work. But the other dimensions in life such as free time and unpaid work aren't seen by this indicator. Unpaid work which is necessary for maintaining life, such as housework, paying bills, child care should be included in calculations of work-life balance. Working hours measurements don't give this information for work-life balance (Fisher and Layte, 2004).

Indicator 1.1

For the dimension of paid work of work-life balance, firstly weekly working hours were measured with time use diaries and household labor force survey and results were compared in Table 5.1. Then proportion of employees working fifty hours or more on average in a week which is an indicator in OECD-Better Life Index in Table 5.2 were calculated. Time Use Survey individual questionnaire results on working hours were also represented in Table 5.3.

In labor force surveys, questions about "how many hours they generally work (in main and second jobs) (usual working hours) and how many hours they worked in the last week (actual working hours)" are asked for measuring weekly working hours.

The aim of calculation of working hours is to search the real time on employment instead of the statement that individuals told. In Household Labor Force

Survey, there are two questions regarding working hours. One of them is usual working hours, the other is about actual working hours within the reference week.

Table 5.1. Weekly average working hours for employed individuals (hours) (Ind. 1.1)

(15 + aged) Sex	TUS 2014-2015 Diary Results		Household Labor Force Survey, 2014		
	Working hours	Number of individuals	Actual working hours within the reference week	Usual working hours	Number of individuals
Female	31.8	2 541	38.9	41.5	54 448
Male	44.9	6 498	48.2	50.4	119 839
Total	41.1	9 039	45.5	47.8	174 287

In Table 5.1 actual working hours (45.5 hours) rather than usual working hours (47.8 hours) are closer to Time Use Survey diary data (41.1 hours). Usual working hours refer to hours that the respondent generally works, we can comment that actually people work less than general working hours due to some events in their lives. It's logical to compare actual working hours and diary results because of diaries' real-life reflection and the actual worked hours in the reference week is asked for in the labor force survey. It's seen that in the diaries the working hours (41.1 hours) are less than the actual working hours (45.5 hours) stated in Labor Force Survey.

As would be expected, women spend less time on paid work than men according to both sources. Time spent on paid work is 31.8 hours for women and 44.9 hours for men with diary results and 38.9 hours for women and 48.2 hours for men with the labor force survey results. It's remarkable that in the diary results, the difference between men and women with 13.1 points is larger than labor force survey results with 9.3 points.

Indicator 1.2

In Table 5.2 the results of the proposed indicator in OECD-Better Life Index, Work Life Balance Component as the heading of *"Employees working long hours"* are shown. The value of fifty hours is proposed in the index also.

Table 5.2. Percentage of employees working fifty hours or more on average in a week (Ind. 1.2)

| (15 + aged) | TUS 2014-2015 Diary Results | | Household Labor Force Survey, 2014 | | |
| | | | By actual working hours within the reference week | By usual working hours | |
Sex	%	Number of individuals	%	%	Number of individuals
Female	27.2	2 541	25.5	27.1	54 448
Male	48.6	6 498	44.9	46.2	119 839
Total	42.8	9 039	39.1	40.5	174 287

As expected, the proportions of women working fifty hours and more, which are 27.2% by diary results, 25.5% (actual) and 27.1% (usual) are less than the proportions for men which are 48.6% by diary results, 44.9% (actual) and 50.4% (usual) by labor force survey results in Table 5.2.

It's interesting that in the diaries the proportions (27.2% for women, 48.6% for men) are more than the proportions of actual working hours (25.5% for women, 44.9% for men) and of usual working hours (27.1% for women, 46.2% for men) in Table 5.2. The difference between women and men in diary results with 21.4 points is larger than labor force survey results with 19.4 points in actual working hours and with 19.1 points in usual working hours.

Indicator 1.3

From time use individual questionnaire, also results for weekly average working hours were calculated as in Table 5.3.

Table 5.3. Weekly average working hours for employed individuals (hours) (Ind. 1.3)

(15 + aged)	TUS 2014-2015 Diary Results		TUS 2014-2015 Individual Questionnaire	
Sex	Working hours	Number of individuals	Working hours	Number of individuals
Female	31.8	2 541	42.1	3 151
Male	44.9	6 498	52.1	7 163
Total	41.1	9 039	49.2	10 314

Working hours seem less in the diaries with 41.1 hours for total, than standard data collection of direct questioning in individual questionnaire with 49.2 hours in Table 5.3. Persons state the working hours as the, work hours in formal work places. But in the diaries the truth in real life can be seen apparently. It's noticed that the working hours for female, male and total by individual questionnaire which are 42.1, 52.1 and 49.2 hours are similar to Labor Force Survey results' usual working hours which are 41.5, 50.4 and 47.8 hours respectively, in table 5.1. In time use survey individual questionnaire, it's asked as usual hours also.

When all the tables about working hours were analysed; following results were derived: The difference between femaless and male is larger in the diary results than the results with stylized questionnaires. In labor force survey, the actual working hours are less than usual working hours. Working hours from TUS diaries are even less than the actual working hours by a bigger margin. As stated in Section 4.3 and 4.5 in this study, time use survey diary has the advantage of self-administration method and diary instrument that results in no bias of social desirability effect as the other surveys as labor force survey. The other advantage of time diaries is that it has low recalling effect due to recording the activities just after the activities are completed. Especially in estimations of the weekly durations of an activity low recalling bias occurs in questionnaires because respondents don't remember total durations for one week and can miscalculate the total weekly time spent. From this point, we can comment that in real life the difference in the working hours between females and males are more than

it's shown from other surveys. Secondly the working hours are less than the results from other surveys.

Indicator Group 2: Flexible working

Flexible work refers to working according to the individuals' personal needs such as choosing where and when to work. Working at home, cha

nging working hours can be given as examples for flexible working. In this section, working on weekends, working outside normal schedules, work flexibility, working at home and work under pressure indicators including recommended ones by UNECE and OECD were represented.

Indicator 2.1

Indicators of "Proportion of persons who did employment work on weekends" and "Proportion of all persons who undertook employment work on weekend days" were calculated and represented in Table 5.4 under the subject of flexible working (UNECE, 2013).

Table 5.4. Proportion of persons who work on weekends (Ind. 2.1)

	TUS 2014-2015 Diary Results			
10+ aged Sex	Employed individuals who work on weekends %	Number of employed individuals	All persons who work on weekends %	Number of all individuals
Female	56.1	2 788	12.0	12 959
Male	62.3	6 861	35.8	12 150
Total	60.6	9 649	23.8	25 109

Among the individuals aged 10 and above, more than half of the employed persons work on weekends with 60.6% in Table 5.4. This proportion of the men with 62.3% is higher than women with 56.1%. Working on weekend can affect time spent on socializing with family or friends, entertainment and relaxing time, which is leisure

time and personal care. When we look at the results for all persons which is in the second column, it's seen that 12% of all women aged 10 and older and 35.8% of all men aged 10 and older work on weekends. 23.8% of the total persons aged 10 and older work on weekends. The reason of the low proportion of women who work on weekends could be bacause many women dedicate themselves on unpaid work rather than paid work.

Indicator 2.2

The indicators of "All persons, average time spent undertaking employment work on weekend days "and "Average time spent on employment work on weekend days, for persons who undertook employment during the weekend" were calculated from TUS diaries and represented in Table 5.5.

Table 5.5. Average duration on employment on weekend (Ind. 2.2)

	TUS 2014-2015 Diary Results			
10+ aged				
Sex	**Average duration on employment work on weekend days in employed persons**	**Number of employed individuals**	**Average duration on employment work on weekend days in all persons**	**Number of all individuals**
Female	01:36	2 788	00:12	12 959
Male	02:09	6 861	00:46	12 150
Total	02:01	9 649	00:29	25 109

Employed persons who work on weekends spend about 2 hours and 1 minute on a weekend day on average in the first column in Table 5.5. Men work on weekends for 2 hours and 9 minutes which is more than women with 1 hour 36 minutes. This can be resulted from the fact that women do unpaid work on weekends more than men. In the second column in Table 5.5, for all persons average time spent on employment work on weekend days is shown. It's seen that average duration of employment work on weekends in all persons aged 10 and older is 29 minutes. While this duration is 46

minutes for men, it's 12 minutes for women. In addition to the proportion of women working on weekend, time spent for working on weekend is also less than men according to Table 5.5.

Indicator 2.3

In Table 5.6, the indicators of "Proportion of persons who did employment work outside of normal schedules (e.g. before 8 a.m. or after 6 p.m.)" (UNECE, 2013). As outside of normal schedules, before 8 a.m. o r after 7 p.m. was accepted for our country. By time use survey diaries, which show the hours of every activity done, the individuals worked in unstandardized hours could be filtered. From the other surveys, in this detail it's impossible to acquire the result.

Table 5.6. Proportion of persons who employed outside of "normal schedules" (before 8 a.m. or after 7 p.m.) (Ind. 2.3)

TUS 2014-2015 Diary Results		
(15+ aged)		
Sex	**%**	**Number of individuals**
Female	48.5	2 541
Male	56.9	6 498
Total	54.7	9 039

Men work more (56.9%) than women (48.5%) on unstandardized times such as before 8.a.m. or after 7 pm in Table 5.6. The reason for this could be women's responsibilities on housework and care work, part-time working more than men. This indicator is a key indicator of the subject of Work-Life Balance for showing the times when the persons work in a day. It can be said that more than half of the population work outside of normal schedules.

Indicator 2.4

In Table 5.7 it could be seen also that women can change their working hours more than men (flexible working).

Table 5.7. Proportion of persons who worked more in the reference week than general weekly hours and reasons of it (Ind. 2.4)

Household Labor Force Survey, 2014						
(15+ aged)			Reasons of working more in the reference week than general weekly hours			
Sex	Persons who worked more in the reference week than general weekly hours %	Number of individuals	Changing working hours (Flexible working) %	Working overtime %	Other %	Number of individuals who worked more
Female	3.4	54 448	70.4	29.4	0.2	1 855
Male	4.6	119 839	67.5	32.4	0.1	5 547
Total	4.2	174 287	68.2	31.7	0.2	7 402

Table 5.7 was produced from the Labor Force Survey and it belongs to the employed persons who worked more in the reference week than general working hours with a proportion of 4.2%. So this is not comparable with Table 5.6. Men worked more in the reference week than general weekly hours according to women with a difference of 1.2 points. It's understood that employed persons work more in the reference week than general hours because of the changing working hours (flexible working) mostly with 68.2%. Women had flexible working with 70.4% more than men with 67.5% while men work overtime with 32.4% more than women with 29.4%. Men's overtime working more than women is also coherent with table 5.6.

Indicator 2.5

Flexible working includes being able to take the whole day off, to change the start or end hours of working hours. In Table 5.8 results from Reconciliation between Work and Family Life Module Survey (2018) and Work Organisation and Working Time Arrangements Module Survey (2019) were shown.

Table 5.8. Proportion of employed persons who can change work hours or take whole day off (Ind. 2.5)

| Sex | Reconciliation Between Work and Family Life Module Survey 2018 (Aged 18-64) | | | Work Organisation and Working Time Arrangements Module Survey 2019 (15+ aged) | |
	Employees who can take whole day off due to care responsibilities (flexibility) %	Employees who can change start or end hours of working hours due to care responsibilities (flexibility) %	Number of individuals	Employees who can change start or end hours of working hours (flexibility) %	Number of individuals
Female	70.1	71.0	3 760	41.7	13 653
Male	66.2	67.7	9 554	37.5	27 191
Total	67.3	68.6	13 314	38.9	40 844

*Since Work Organisation and Working Time Arrangements Module Survey 2019 microdata wasn't accessible at the time preparation of these tables, the results from TurkStat's web page on the press release for the module survey (2019) was used for this table. As a result, the age couldn't be able to get to the same age with Reconciliation between Work and Family Life Module Survey 2018.

It's known that the possibility of changing the working hours is an important aspect of the Work-Life Balance concept. In Table 5.8, in the first and second column, the proportions are for flexibility due to care responsibilities while the third column is for the whole persons. So it's not comparable. It can be understood that due to care responsibilities flexibility opportunities are much more than flexibility opportunity with no reason, as the third column's values are about 30 points less than the first columns' values. It's seen that women are having more freedom for taking the whole day off or change the start or end hours of work due to care responsibilities than men with a difference of about 4 points of course due to their gender roles which are child care or adult care. In the fourth column, general flexibility proportions can be seen. Similarly, women can change the start or end hours of working hours more than men with a difference of about 4 points.

Indicator 2.6

In addition to being able to change working hours, taking one or two hours off for personal or family matters are critical points for flexible working. In Table 5.9, Life Satisfaction Survey (2017) and Work Organisation and Working Time Arrangements Module Survey (2019) results were shown.

Table 5.9. Proportion of employees who can take one or two hours off for personal or family matters during working hours (Ind. 2.6)

	Life Satisfaction Survey 2017 (18+ aged)		Work Organisation and Working Time Arrangements Module Survey 2019 (15+ aged)	
Sex	**%**	**Number of individuals**	**%**	**Number of individuals**
Female	89.5	975	79.4	13 653
Male	90.1	2 076	79.3	27 191
Total	89.9	3 051	79.4	40 844

*Since Work Organisation and Working Time Arrangements Module Survey 2019 microdata wasn't accessible at the time preparation of these tables, the results from TurkStat's web page on the press release for the module survey (2019) was used for this table.

These two survey's questionnaire designs are almost the same for having information on this matter. It's interesting that the results have a difference of about 10 percent in Table 5.9 between the two surveys. The reasons for this difference could be due to the respondents' age difference and sample size differences. In Work Organisation and Working Time Arrangements Module Survey, the proportions are for employed persons aged 15 and above while in Life Satisfaction Survey, for employed persons aged 18 and above. Women and men have similar results (89.5% and 90.1% with the first source and 79.4% and 79.3% with the second source) in taking one or two hours off during working hours.

Indicator 2.7

The indicator of "Proportion of persons who did employment work by the hour of the day" can be obtained from time use diaries (UNECE, 2013). By TurkStat a release of press room was disseminated in 8 September 2016 with the results of Time Use Survey, 2014-2015. Figure 5.1 was the related graphic and comments as disseminated by TurkStat (TurkStat, 2016).

Figure 5.1. Distribution of activities of individuals aged 15 and above by hour of the day (%) (Ind. 2.7)
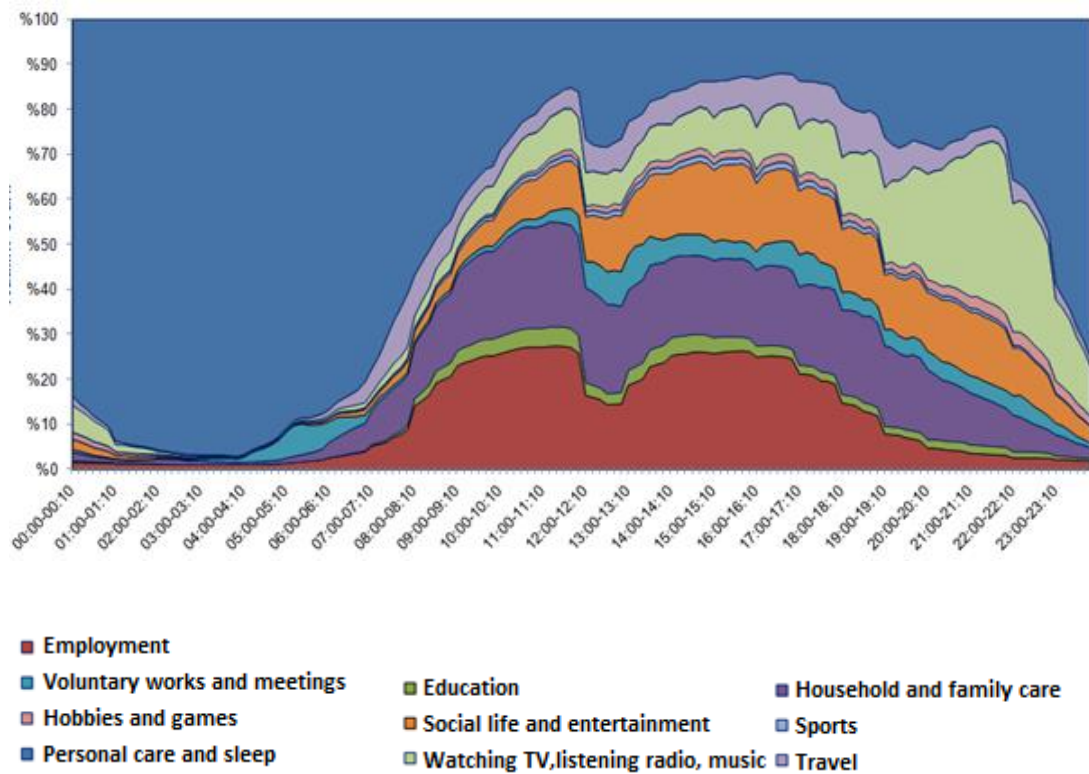
Source**:** Time Use Survey 2014-2015, TurkStat, 2016

In Figure 5.1 the participation rates of all activities for every hour intervals were shown. The proportion of employment activity was most at the time interval of 11:20-11:30 with 27%, least at the time interval of 03:00-03:10 with 1%. From the graphic, the proportion of employed persons working after 19:00 and before 08:00 could be seen in detail. With the other surveys, it's impossible to get Figure 5.1. The

advantage of time use survey diaries is being able to get information on each activity with its contextual details.

Indicator 2.8

With the term of working at home, employed persons who work at home sometimes or general is referred. A comparison of the diary results and labor force survey results will again show the difference between the statement values and the real life situation in Table 5.10.

Table 5.10. Percentage of employed individuals who work at home at least once a week (%) (Ind. 2.8)

(15 + aged)	TUS 2014-2015 Diary Results		Household Labor Force Survey, 2014	
Sex	%	Number of individuals	%	Number of individuals
Female	14.7	2 541	7.7	54 448
Male	7.9	6 498	1.1	119 839
Total	9.7	9 039	3.0	174 287

In the results, diary results with 9.7% for total are higher than the survey results stated by individuals with 3% for total in Table 5.10. It can be commented that employed persons work at home more than they state and see themselves. The diaries reveal that 14.7% of employed women work at home at least once a week also. The reason that women work at home more than men with 7.9% could be a result of more unpaid work done by women at home as child care, adult care, or housework. For this situation, women could work in a more flexible way than men. Moreover, with time use diaries, average time spent on work at home in a day or in a week can be obtained which can't be acquired from another survey data unless the survey has a question asking the duration daily or weekly.

Indicator 2.9

In Table 5.11, the results are for the employed persons and the proportions are for working under time pressure.

Table 5.11. Proportion of employed persons who work under time pressure (Ind. 2.9)

| **Work Organisation and Working Time Arrangements Module Survey 2019**		
(15+ aged)		
Sex	**%**	**Number of individuals**
Female	17.5	13 653
Male	18.3	27 191
Total	18.0	40 844

*Since Work Organisation and Working Time Arrangements Module Survey 2019 microdata wasn't accessible at the time preparation of these tables, the results from TurkStat's web page on the press release for the module survey (2019) was used for this table.

It can be said that women's 17.5%, men's 18.3% and total persons' 18% work under time pressure.

When all results on flexible working were evaluated; it was seen that many results were obtained from time use survey diaries such as working on weekends, working at home, working outside of normal schedules, proportion of working people by hours of the day. These results could be obtained due to the questionnaire design of TUS diaries that include contextual information on what time, where, week/weekend day for each activity. In addition to the proportion, time spent for these activities could also be calculated by the diaries. Household Labor Force Survey and modular surveys of it (2018 and 2019) produced beneficial data on flexible working as well as Life Satisfaction Survey. In the results of working at home, the proportions from TUS diaries are higher than the ones from Household Labor Force Survey. It's known that TUS diaries give richer data on informal employment from the literature due to its

questionnaire design. It can be derived that working at home is longer in reality than people believed.

5.2. Unpaid Work

Results on the unpaid work are represented by descriptive analysis under the headings of care work, housework, help to other households, and voluntary work. While results on paid work are prevalent especially with the source of the Labor Force Survey, it is obvious that there isn't enough information about unpaid work. Unpaid work is part of the total work-load which affects work-life balance of mostly women. Unless total workload is known, the free time can't be estimated and so we can't comment on the balance of life. Unpaid work is the nonvisible work that isn't accepted by the population because in return for unpaid work persons can't gain money. Consequently, this is a critical subject especially for women.

Indicator Group 3: Care work

In Turkey, even though some care work is done by professional care workers as baby sitters or caregivers, most of the care work is done by women.

Indicator 3.1

In Table 5.12, data on persons who spend time on caring children and data on who are responsible from children is shown.

Table 5.12. Proportion of individuals who take care of/responsible from children living in same house or in another household aged less than 15 regularly (Ind. 3.1)

(Aged 18-64)	TUS 2014-2015 Diary Results (taking care)		Reconciliation Between Work and Family Life Module Survey 2018 (responsible)	
Employment status	**%**	**Number of individuals**	**%**	**Number of individuals**
Female	44.8	9 534	38.8	38 206
Employed	37.5	3 008	36.3	13 502
Unemployed	48.2	6 526	40.2	24 704
Male	22.3	8 987	37.7	36 156
Employed	24.6	6 797	44.8	27 032
Unemployed	15.1	2 190	16.2	9 124
Total	33.6	18 521	38.3	74 362

The total proportion of persons taking care of children is less in time use diaries with 33.6% than module survey with 38.3% in Table 5.12. In the module survey if there is respondent's child in the same household, then it's enough to accept that s/he is accepted as responsible for determining the responsibility situation for the child whether he/she spends time to take care or not. Only for the situation that his/her child is in another household and if s/he takes care regularly child, then s/he is accepted for being responsible. So even if he/she doesn't spend time with children, if he/she has a child in the same house it affects the proportion. It is interesting that while the male proportion is less in time use diaries with 22.3% than survey result with 37.7%, the female proportion is more in diaries with 44.8% than the module survey with 38.8%. This validates the responsibility situation. Even if men are responsible also for children, it's clear that women spend more time on child care. The contribution of time use diaries can be observed apparently here for the women's unpaid work in child care. Responsibility doesn't mean the labor for child care. In Turkey, most work on this subject is realized by women.

Another important point in Table 5.12 is that the sharp difference between the proportions of employed and unemployed women in the diary results is 10.7 points. It's understood that even the proportions of child care responsibility of employed and

unemployed women are close to each other according to module survey with 3.9 points difference, 48.2% of unemployed women spend time on child care much more than employed women with 37.5% according to the diary results as expected in real life.

Moreover, with time use diaries, average time spent on child care work in a day or in a week can be given that can't be acquired from another survey data unless the survey has a question asking the duration daily or weekly.

Indicator 3.2

In Table 5.13, data on persons who spend time on adult care is shown from three data sets.

Table 5.13. Proportion of individuals who take care of adults aged more than 15 living in same house or in another household regularly (Ind. 3.2)

(Aged 18-64)	TUS 2014-2015 Diary Results		Reconciliation Between Work and Family Life Module Survey 2018		Health Survey 2014	
Employment status	%	Number of individuals	%	Number of individuals	%	Number of individuals
Female	13.8	9 534	3.2	38 206	13.4	8 414
Employed	10.2	3 008	4.3	13 502	14.3	2 156
Unemployed	15.5	6 526	2.7	24 704	13.0	6 258
Male	5.4	8 987	2.0	36 156	10.9	7 111
Employed	5.1	6 797	1.7	27 032	10.8	5 050
Unemployed	6.2	2 190	2.9	9 124	11.4	2 061
Total	9.6	18 521	2.6	74 362	12.1	15 525

The total proportion of persons taking care of adults is more in time use diaries with 9.6% than module survey with 2.6% in Table 5.13. In the module survey it's asked whether s/he takes care of adults regularly. In the health survey, taking care of adults at least once a week is asked. The difference is large between men and women in time diaries results with 8.4 points. In both module and health surveys, results of men are closer to women's results with a difference of 1.2 and 2.5 points respectively.

Only in the diary results, the gap between genders is noticed. The difference is also large between employed and unemployed women with 5.3 points with diary results.

Indicator 3.3

In Table 5.14, the proportion of individuals by the duration of unpaid adult care work weekly is shown by time use diary and the health survey results. In the health survey, in some questions, the duration is asked for the activity in time intervals. It gave the chance to compare the results with the time use diaries.

Table 5.14. Proportion of individuals by duration of unpaid adult care work weekly (Ind. 3.3)

(Aged 18-64)	TUS 2014-2015 Diary Results		Health Survey 2014	
Duration	**%**	**Number of individuals**	**%**	**Number of individuals**
Female	100.0	1 322	100.0	1 135
Less than 10 hours	91.8	1 322	47.1	1 135
10-20 hours	5.2	1 322	17.2	1 135
More than 20 hours	3.0	1 322	35.7	1 135
Male	100.0	516	100.0	834
Less than 10 hours	86.2	516	65.0	834
10-20 hours	7.6	516	11.5	834
More than 20 hours	6.1	516	23.5	834
Total	100.0	1 838	100.0	1 969
Less than 10 hours	90.3	1 838	55.2	1 969
10-20 hours	5.9	1 838	14.7	1 969
More than 20 hours	3.8	1 838	30.2	1 969

The proportion who care for adults less than 10 hours in a week is more in diaries with 90.3% than survey result with 55.2% in Table 5.14. The proportions of the individuals who care unpaid adults 10-20 hours in a week with 14.7% and more than 20 hours with 30.2 by the survey results is more than that of the diary results with 5.9% and 3.8%. It can be commented that the persons could state the duration more in surveys than in real life for the reason of social desirability effect and that they may not calculate their total care work for a week in a realistic way because of the recalling

effect of the survey time. Another reason for the high proportions for the low duration which is less than 10 hours, could be the possibility of the fact that every activity may not be recorded to the diaries by the individuals. Because of that the total duration per week may be calculated low.

By diary results while the proportion of women who take care adults with 13.8% is more than that of men with 5.4% in Table 5.14, the proportion of women who take care adults less than 10 hours in a week with 91.8% is more than that of men with 86.2% in table 4.6. It can be commented that a low proportion of men do unpaid adult care with high durations, but the high proportion of women do unpaid adult care with low durations in a week. Contrary to the diaries, in health survey results women stated their unpaid adult caring work duration in a week for longer durations than men. While the proportion of women stated their caring work duration as more than 20 hours is 35.7%, it's 23.5% for men.

Indicator 3.4

In Table 5.15, data on persons who spend time on elderly care was shown from TUS diaries and TUS individual questionnaire.

Table 5.15. The proportion of individuals who take care of elderly people (Ind. 3.4)

(10 + aged)	TUS 2014-2015 Diary Results			TUS 2014-2015 Individual Questionnaire		
Elderly care activity	**Female %**	**Male %**	**Total %**	**Female %**	**Male %**	**Total %**
Total elderly care*	4.3	2.4	3.3	5.9	4.0	**5.0**
Elderly care for people in the same house	1.1	0.3	0.7	2.3	1.3	1.8
Number of individuals	12 959	12 150	25 109	12 959	12 150	25 109

* In the diaries, elderly care activity was calculated by elderly care in the same house and adult care in another household. Adult care in another household couldn't be dissociated to elderly care in another household. So the real proportions of total elderly care from diaries are most likely to be smaller than these proportions seen in the table.

In time use diaries, the individuals who recorded related activity at least once on a weekday or a weekend day which means at least once in a week were selected. Elderly care was asked for the last 4 months to the respondents in the individual questionnaire. Then the frequency of elderly care was asked such as once in a month or once in a week. The individuals who did elderly care once in a week and more were calculated from the questionnaire.

In Table 5.15, women take care of elderly people more than men according to both sources with 4.3% by diary results and 5.9% by questionnaire results. The diary results are less than the questionnaire results in Table 5.15. Between the two sources there is a difference of 1.6 points for women, again 1.6 points for men and 1.7 points for total in Table 5.15. When we look at women who take care of elderly people in the same house, similarly women take care more than men according to both sources with 1.1% by diary results and 2.3% by questionnaire results.

Indicator Group 4: Housework

Unpaid domestic work consists of housework in addition to child/elder care work. There are many kinds of housework, such as cooking, cleaning, repair, etc.

Indicator 4.1

In Table 5.16, the housework titles were determined as asked in FSS. The TUS diary data was arranged for the same activity codes as FSS.

Table 5.16. Distribution of individuals doing housework by sex (Ind. 4.1)

(15+ aged)	TUS 2014-2015 Diary Results			Family Structure Survey, 2016		
Housework types	**Female %**	**Male %**	**Number of individuals**	**Female %**	**Male %**	**Number of individuals**
Cooking*	77.2	22.8	13.603	91.2	8.8	15.513
Painting the house*	20.8	79.2	255	19.6	80.4	6.916
Laundry (even if machine available)	96.1	3.9	3.397	91.3	8.8	15.484
Paying monthly bills*	32.7	67.3	684	22.3	77.7	13.858
Basic needlework (sewing, buttons etc.)	95.5	4.5	1.819	92.4	7.6	15.059
Serving tea*	77.2	22.8	13.603	89.3	10.7	15.491
Laying and cleaning the table *	77.2	22.8	13.603	89.9	10.1	15.540
Ordering/cleaning the house	80.6	19.4	12.038	91.3	8.7	15.464
Shopping for food and beverage*	49.6	50.4	7.344	54.5	45.5	14.809
Dishes (even if dishwasher available)	86.3	13.7	11.219	90.8	9.2	15.532
Basic maintenance and repair	24.8	75.2	457	11.1	88.9	11.178
Ironing	94.1	5.9	1.866	89.7	10.3	14.085

*These are kinds of housework asked in Family Structure Survey. In time use diaries more general activity codes containing these activities were chosen. In these activity codes, the code isn't just the same as seen in this table. For example, instead of cooking there is code for "food preparation, baking and preserving" which contains cooking, serving tea and laying and cleaning the table which are also different titles in this table. In diaries, instead of "shopping for food and beverages", there is activity code for "shopping".

In time use diaries, the proportions were calculated by female and male individuals who did housework according to their diaries. But in Family Structure Survey, in the household questionnaire, the respondent answered the question for the whole household as who does the most housework in the family. As a result, the answers aren't one to one comparable. But it can give an idea about gender equality in housework. It's seen in Table 5.16 that while women are dominant in some works, men are dominant in other works. Some housework that women do commonly are cooking with 77.2% by diary and 91.2% by family structure survey, laundry with 96.1% by diary and 91.3% by family structure survey, basic needlework with 95.5% by diary and 92.4% by family structure survey, ordering/cleaning the house with

80.6% by diary and 91.3% by family structure survey, dishes with 86.3% by diary and 90.8% by family structure survey and ironing with 94.1% by diary and 89.7% by family structure survey. Some housework that men do commonly are painting the house with 79.2% by diary and 80.4% by family structure survey, paying monthly bills with 67.3% by diary and 77.7% by family structure survey, basic maintenance and repair with 75.2% by diary and 88.9% by family structure survey.

The difference between the diary data and survey data could arise from the fact that in the survey who does this housework in general is asked. As a result, the survey results reflect the most responsible person in the household. But in the diaries, the persons who recorded to the diaries the housework was included in the calculation whether s/he is the most responsible person in the household or not.

It can be said that there is a division of labor in housework, but it's a fact that women have the most responsibility in housework when the continuous works were paid attention such as cooking, ordering/cleaning the house. Painting the house, paying the monthly bills, basic maintenance and repair works are not continuous and not done frequently which are the works that men do in general according to the results. Moreover, from diaries the average time spent on kinds of housework can be given.

Indicator Group 5: Help to Other Households

In time use survey individual questionnaire, there are questions on help to other households, so the results of the questionnaire were compared with the diary results.

Indicator 5.1

In Table 5.17., information on persons who help to other households is given from TUS diaries and individual questionnaire.

Table 5.17. Proportion of individuals who help to other households (Ind. 5.1)

(10 + aged)		TUS 2014-2015 Diary Results		TUS 2014-2015 Individual Questionnaire	
Sex	**%**	**Number of individuals**	**%**	**Number of individuals**
Female	8.5	12 959	13.1	12 959
Male	5.4	12 150	5.9	12 150
Total	7.0	25 109	9.5	25 109

In time use diaries, the individuals who recorded related activity at least once on a weekday or weekend day which means at least once in a week were selected. The behaviors of the individuals can be commented on for one week. In the individual questionnaire for this question, it's asked whether persons did this activity in the last 4 weeks or not. Then for the persons who did this activity, the number of the activities in the last 4 weeks were asked. For making it comparable with the diary results, the persons who did 4 and more in the last 4 weeks were selected. That means about once a week the activity was done on average. Because it's asked for a longer time interval, the questionnaire for this question (whether s/he did or did not the activity in 4 weeks) can give more true information on the person's general behavior.

It's seen in Table 5.17 that women help other households more than men according to both sources with 8.5% by diary results and 13.1% by questionnaire results. The diary results are less than questionnaire results. Between the two sources there are differences of 4.6 points for women, 0.4 points for men, and 2.5 points for total in Table 4.19.

Indicator Group 6: Voluntary Work

In time use survey individual questionnaire, there are questions on voluntary work, so the results of the questionnaire were compared to the diary results.

Indicator 6.1

In Table 5.18, information on persons who do voluntary work at least once a week is given from TUS diaries and individual questionnaire.

Table 5.18. Proportion of individuals who do voluntary work for organizations at least once a week (Ind. 6.1)

(10 + aged)	**TUS 2014-2015 Diary Results**		**TUS 2014-2015 Individual Questionnaire**	
Sex	**%**	**Number of individuals**	**%**	**Number of individuals**
Female	0.3	12 959	0.6	12 959
Male	0.5	12 150	1.4	12 150
Total	0.4	25 109	1.0	25 109

In the individual questionnaire, voluntary work was asked whether persons did this activity in the last 4 weeks or not. It's seen in Table 5.18 that women do voluntary activities for organizations less than men according to both sources with 0.3% by diary results and 0.6% by questionnaire result. Between the two sources, there are differences of 0.3 points for women, 0.9 points for men, and 0.6 points for total.

For the results on unpaid work, TUS diary data could be arranged for being comparable with the other sources due to the rich activity coding list. The detailed or main activity aimed, could be calculated for the proportion of time spent on it. In the results, generally the differences between females and males were larger in the diaries than the other sources. Proportions of individuals doing unpaid work and time spent on it was generally lower in the diary results than the other sources. Social desirability bias and low recalling effect in questionnaires could be the reason for these. Another reason could be item missing data bias in diaries that were filled by the respondents as a self-administered method. Some activities may not be recorded to the diaries even if they were done. In TUS individual questionnaire, many number of questions were asked for the last 4 weeks or for the last 4 months. They were arranged for comparison with TUS diaries to one week. For infrequent or irregular activities, time use diaries

have the disadvantage of catching them in a week. Questionnaires as in the example of TUS Individual Questionnaire would be very beneficial for completing the diaries deficient.

5.3. Leisure Time

Paid and unpaid work generally don't make people enjoyed, relaxed, intellectual gainings and don't enable quality time with friends and family. Thus, the time spent on leisure time should be examined separately (UNECE, 2013). Total workload affects the time spent on leisure time and personal care time. Leisure time is the time which people enjoy, relax that time, which is key component of Work-Life Balance.

In this section, the indicators on family time, sports, and social activities were represented by TUS diaries and other surveys.

Indicator Group 7: Family Time

It's known that socializing with family or friends affects a person's enjoyment from life and life quality. The results that were acquired from the Family Structure Survey on family time were shown for comparing with time use diary data in Table 5.19 and 5.20. Time use diary data was harmonized for calculating the same indicator.

Indicator 7.1

In Table 5.19, information on households having breakfast, lunch and dinner meals together is shown from TUS diaries and FSS.

Table 5.19. Proportion of households that household members eat with household members regularly (Ind. 7.1)

Meal times	TUS 2014-2015 Diary Results		Family Structure Survey 2016	
	%	Number of households having each meal	%	Number of households
Weekday				
Breakfast	81.4	7 861	56.3	15 275
Lunch	55.1	7 403	39.1	15 275
Dinner	93.2	8 072	88.1	15 275
Weekend day				
Breakfast	87.0	7 579	85.0	15 275
Lunch	68.7	6 837	73.2	15 275
Dinner	92.5	7 939	91.9	15 275

Eating together is an important way of family socializing. In time use diary data, activity code is as "eating" not in the detail of breakfast, lunch, or dinner. For calculating the proportions; the eating times for breakfast, lunch and dinner were determined. In the persons who eat food, the individuals who selected with family were chosen. But in the Family Structure Survey, it is asked to the respondent for the whole family in the household questionnaire as for the frequency for eating together for each eating time. The households with that individuals were selected for being able to compare Family Structure Survey in which the question was asked for the household to the respondent. Because the proportions are for the household level, the results can't be shown for women and men.

It's seen that on weekend days the proportions are similar in Table 5.19 with 87% at breakfast, 68.7% at lunch, 92.5% at dinner by diaries and 85% at breakfast, 73.2% at lunch, 91.9% at dinner by the survey. But on weekdays the proportions of breakfast and lunch are high in diaries with 81.4% and 55.1% differently from family structure survey with 56.3% and 39.1%, respectively. It can be commented as people

stated that they eat with family mostly on weekends, but in real life especially on weekdays most families eat breakfast together with 81.4% by diaries.

Indicator 7.2

In Table 5.20, information on households participating to social activities together is shown from TUS diaries and FSS.

Table 5.20. Proportion of households that household members participate to social activities with household members regularly (Ind. 7.2)

Social activities	TUS 2014-2015 Diary Results		Family Structure Survey 2016	
	%	Number of households having each meal	%	Number of households
Visiting relatives*	56.3	4 868	68.7	15 275
Visiting neighbours*	56.3	4 868	54.5	15 275
Visiting friends*	56.3	4 868	56.9	15 275
Going to eat outside*	19.9	2 619	32.6	15 275
Going to cinema	28.3	219	12.1	15 275
Going to shopping	41.5	4 698	56.1	15 275
Watching TV*	90.7	8 049	81.2	15 275

* In time use diaries, for visiting relatives, neighbours and friend's activity codes are the same, as a result the proportions for these three activities are the same. For calculating the proportion of "going to eat outside", eating activity with the place of activity of cafe, restaurant was selected in time use diaries. Watching TV is in the activity code of "watching TV, video or DVD". As a result, some proportions may not be one to one comparable.

Because the proportions are for the household level, the results can't be shown for women and men in Table 5.20. In time use diaries, the individuals who recorded related activity at least once with the household members were proportioned to the individuals who did that activity. The households with that individuals were selected for being able to compare Family Structure Survey in which the question was asked for the household to the respondent as participation in social activities regularly.

In Table 5.20, for the first three activities which are the same in time use diaries due to the same activity code containing the three activities in one code, the diary results which is 56.3% aren't comparable with survey results. It can be commented that more than half of the households' members visit relatives/neighbors/friends with the family according to both sources. By the family structure survey, visiting relatives is an activity that is done mostly with the family with 68.7%. Going to cinema with the family is seen more in diary results with 28.3% according to survey results which are 12.1%. The reason for this difference could be due to the different data collection methods. In the diaries the individuals who recorded related activity at least once with the household members were proportioned to the individuals who did that activity. The households with that individuals were selected. In total households, about one of three households had individuals who went to the cinema with their families. But in the family structure survey, the question was asked to the respondent for the household as to how frequently her/his household participate in social activities with household members together. If the household members don't go to the cinema frequently, they may not answer as regular participation even when they go to the cinema there is participation with the family.

For calculating the proportion of "going to eat outside", eating activity with the place of activity of cafe, restaurant was selected in time use diaries as stated in the footnote of Table 5.20. This shows the flexible structure of time use diaries. Even if there isn't the activity code of eating outside in the activity list, by using the location of the activity code together with the activity code, information on eating outside was able to be acquired. In going to eat outside and going to shopping activities, it's seen that the results are more in survey results with 32.6% and 56.1% than diary results with 19.9% and 41.5%, respectively. It's seen that watching television values are high by both sources with 90.7% by diary results and 81.2% by survey results.

Indicator 7.3

Socializing with family or friends affects a person's enjoyment from life and life quality. The indicators of "All persons, average time spent on activities with family members", "All persons, average time spent on activities with family members without employment-related activities", "Average time spent on activities with family members, for persons who did employment work" and "Average time spent on activities with family members without work-related activities, for persons who did employment work" are shown in Table 5.21 (UNECE, 2013).

Table 5.21. Average time spent on activities with family members (Ind. 7.3)

	TUS 2014-2015 Diary Results					
(10+ aged)						
Sex	Average duration on activities with family members in all persons	Average duration on activities with family members without employment-related activities in all persons	Number of all individuals	Average duration on activities with family members in persons who did employment work	Average Duration on activities with family members without employment-related activities in persons who did employment work	Number of employed individuals
Female	08:36	08:25	12 959	08:19	07:29	2 788
Male	07:30	07:09	12 150	07:51	07:16	6 861
Total	08:03	07:48	25 109	07:59	07:19	9 649

It's seen that generally women spend more time with the family members and time spent with family is a big part of the time in a day which is approximately 8 hours in a day in Table 5.21. It's known that child care is carried out by women mostly. This can be one reason for women's more family time. It decreases non-employment activities. When the employed persons are viewed (3rd and 4th column), it's noticed that employed men spend more time with family members (07:51 and 07:16 hours) than whole men (07:30 and 07:09 hours), on the other hand, employed women spend

less time (08:19 and 07:29 hours) than whole women (08:36 and 08:25 hours). This can result from the fact that the majority of employed men are married and have children, so their time with family increases. The least time spent with family is in employed persons on non-employment activities.

From other survey, this indicator can't be acquired easily. Even if there are questions asking about the durations with family members in a week or a day, because of recalling the total duration is difficult to answer, it may not reflect the real life of the persons.

Indicator Group 8: Sports Time

Doing sports is an important habit that affects physical and mental health. It also increases the resistance of the person. In leisure time, sports time also shows the quality of life.

In tables 5.22 and 5.24, rather than aiming of doing sports, it's asked to individuals whether they walk or ride a bicycle when they go from somewhere to another place in the health survey. This also measures the physical activity of the persons.

Indicator 8.1

In Table 5.22, information on persons who walk at least 10 minutes in a week for going somewhere is shown.

Table 5.22. Proportion of individuals who walk at least 10 minutes in a week when they go from somewhere to another place (Ind. 8.1)

(15 + aged)	TUS 2014-2015 Diary Results		Health Survey 2014	
Sex	**%**	**Number of individuals**	**%**	**Number of individuals**
Female	35.1	11 732	70.3	10 408
Male	40.1	10 920	80.8	8 721
Total	37.6	22 652	75.5	19 129

In time use diaries, the individuals who recorded the activities with the location of the activity of walking were selected. It's seen that the female, male, total proportions with 70.3%, 80.8%, and 75.5% of Health Survey are much more than diaries with 35.1%, 40.1%, and 37.6% in Table 5.22.

Indicator 8.2

In Table 5.23, information on distribution of persons by duration of walking for going somewhere is shown.

Table 5.23. Proportion of individuals by duration of walk when they go from somewhere to another place (Ind. 8.2)

(15 + aged)	TUS 2014-2015 Diary Results		Health Survey 2014	
Duration	**%**	**Number of individuals**	**%**	**Number of individuals**
Female	100.0	4 319	100.0	7 381
10-29 minute in a day	56.7	4 319	61.4	7 381
30-59 minute in a day	27.4	4 319	27.5	7 381
More than 1 hour, less than 2 hours in a day	14.0	4 319	7.7	7 381
More than 2 hour, less than 3 hours in a day	1.6	4 319	1.6	7 381
3 hours or more in a day	0.3	4 319	1.9	7 381
Male	100.0	4 577	100.0	7 033
10-29 minute in a day	47.4	4 577	45.7	7 033
30-59 minute in a day	27.5	4 577	29.6	7 033
More than 1 hour, less than 2 hours in a day	19.1	4 577	15.0	7 033
More than 2 hour, less than 3 hours in a day	4.4	4 577	4.0	7 033
3 hours or more in a day	1.6	4 577	5.7	7 033
Total	100.0	8 896	100.0	14 414
10-29 minute in a day	51.8	8 896	53.1	14 414
30-59 minute in a day	27.4	8 896	28.6	14 414
More than 1 hour, less than 2 hours in a day	16.7	8 896	11.6	14 414
More than 2 hour, less than 3 hours in a day	3.1	8 896	2.9	14 414
3 hours or more in a day	1.0	8 896	3.9	14 414

In the health survey, the question was asked in time intervals to the persons. With the elasticity of time diaries, the time spent was grouped in accordance with the health survey. It's seen that the results are similar in two surveys in Table 5.23 with the female, male, total proportions as in 10-29 minute in a day of 56.7%, 47.4%, 51.8% by diaries, and 61.4%, 45.7%, 53.1% by health survey results.

It's seen that in the survey results, the proportions of individuals telling that they walk 3 hours or more in a day is more than the diary results, while the proportions of individuals telling that they walk between 1 hour and 2 hours in a day is less than the diary results. It is clear that respondents can overestimate when they like the activity and like to seem themselves as if they do walk than they do in real life.

Females seem to spend less time for walking when they go from somewhere to another place than men because the proportions of women who walk in shortest time of 10-29 minute in a day are high values with 56.7% by diaries and 61.4% by survey results. That means proportions of women who walk with longer durations are low according to men. This result is compatible with the result of Table 5.22 that fewer women walk than men.

Indicator 8.3

In Table 5.24, information on persons who ride a bicycle at least 10 minutes in a week for going somewhere is shown.

Table 5.24. Proportion of individuals who ride a bicycle at least 10 minutes in a week when they go from somewhere to another place (Ind. 8.3)

(15 + aged)	TUS 2014-2015 Diary Results		Health Survey 2014	
Sex	**%**	**Number of individuals**	**%**	**Number of individuals**
Female	0.1	11 732	1.9	10 408
Male	0.8	10 920	8.7	8 721
Total	0.4	22 652	5.3	19 129

In the time use diaries, the individuals who recorded the activities with the location of the activity of riding bicycles were selected. It's again seen that the female, male, total proportions with 1.9%, 8.7%, and 5.3% of Health Survey are more than diaries with 0.1%, 0.8%, and 0.4% in Table 5.24.

Indicator 8.4

In Table 5.25, information on distribution of persons by duration of riding bicycle for going somewhere is shown.

Table 5.25. Proportion of individuals by duration of riding bicycle when they go from somewhere to another place (Ind. 8.4)

(15 + aged)	TUS 2014-2015 Diary Results		Health Survey 2014	
Duration	**%**	**Number of individuals**	**%**	**Number of individuals**
Female				
10-29 minute in a day	*	7	47.8	176
30-59 minute in a day	*	7	39.0	176
More than 1 hour, less than 2 hours in a day	*	7	8.1	176
More than 2 hour, less than 3 hours in a day	*	7	4.8	176
3 hours or more in a day	*	7	0.2	176
Male				
10-29 minute in a day	42.8	99	55.3	738
30-59 minute in a day	36.4	99	26.4	738
More than 1 hour, less than 2 hours in a day	17.5	99	11.6	738
More than 2 hour, less than 3 hours in a day	2.4	99	3.6	738
3 hours or more in a day	0.9	99	3.1	738
Total				
10-29 minute in a day	45.1	106	53.9	914
30-59 minute in a day	35.5	106	28.7	914
More than 1 hour, less than 2 hours in a day	16.4	106	11.0	914
More than 2 hour, less than 3 hours in a day	2.2	106	3.8	914
3 hours or more in a day	0.9	106	2.5	914

Note: An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

Since the number of women who ride a bicycle is very limited in time use diaries, the proportions were given. Similar to Table 5.23, it's seen that in the survey results, the proportions of individuals telling that they ride bicycle 3 hours or more in

a day is more than the diary results, while the proportions of individuals telling that they ride a bicycle between 1 hour and 2 hours in a day is less than the diary results.

Indicator 8.5

In Table 5.26, information on persons doing sports at least 10 minutes is shown.

Table 5.26. Proportion of individuals who do sports at least 10 minutes in a week (Ind. 8.5)

(15 + aged)	**TUS 2014-2015 Diary Results**		**Health Survey 2014**	
Sex	**%**	**Number of individuals**	**%**	**Number of individuals**
Female	13.4	11 732	4.8	10 408
Male	24.1	10 920	10.3	8 721
Total	18.7	22 652	7.5	19 129

In the health survey, doing sports, fitness, or free time activity at least 10 minutes in a week is asked. In time use diaries, all sportive activities were taken into consideration. This time it's interesting that the total proportion of persons who do sports is more in diaries with 18.7% than health survey with 7.5 in Table 5.26. Differently from the tables above, the activity code of doing sports was selected for this table. This difference could be resulted from the fact that in time use survey activity list, walking is in the main group of sports heading. As a result, even if the person walks without aiming to do sports, it's calculated as sports in diary results. On the other hand, in the survey, it's asked whether the respondent does sports, fitness, or other free time activity at least 10 minutes in a week. As a result, only persons who do sports with aiming to do sports respond as yes to this question. It's noticed that women do sports less than men as in the previous tables according to both sources with 13.4% by diaries, 4.8% by survey results while for men 24.1% by diaries, 10.3% by survey results.

Indicator 8.6

In Table 5.27, information on time spent on doing sports in a week is shown by hours and minutes.

Table 5.27. Average time spent on doing sports weekly (hours) (Ind. 8.6)

(15 + aged)	TUS 2014-2015 Diary Results		Health Survey 2014	
Sex	**Hours**	**Number of individuals**	**Hours**	**Number of individuals**
Female	04:40	1 599	02:42	544
Male	06:37	2 611	03:10	877
Total	05:55	4 210	03:01	1 421

In the health survey, the time duration for doing sports was asked weekly. As a result, as in time use survey results, the average time spent on doing sports could be calculated with the health survey in addition to time use diaries. These durations are for persons who do sports at least once a week. It's seen in the diaries that for the individuals who do sports weekly, the duration is longer in a week for females, males and total with 04:40, 06:37 and 05:55 hours and minutes in Table 5.27. But in the health survey, they stated the weekly duration of sports less for females, males and total with 02:42, 03:10 and 03:01 hours and minutes. As stated in Table 5.26 this difference could have resulted from the fact that in time use survey activity list, walking is in the main group of sports heading. As a result, time is calculated for only persons who do sports with aiming to do sports while from the diaries in the total duration walking without aiming to do sport is also included to the total duration of sports.

Indicator 8.7

In Table 5.28, information on persons doing sports activities regularly is shown by the name of the sports activity.

Table 5.28. The proportion of individuals who do sports activities regularly (Ind. 8.7)

(10 + aged)	TUS 2014-2015 Diary Results			TUS 2014-2015 Individual Questionnaire		
Sports activity	**Female %**	**Male %**	**Total %**	**Female %**	**Male %**	**Total %**
Walking, jogging	10.7	16.2	13.4	8.0	8.6	8.3
Cycling	0.6	1.4	1.0	0.8	2.3	1.5
Swimming	0.7	1.3	1.0	0.7	1.3	1.0
Football*	1.7	8.1	4.9	0.1	6.4	3.2
Basketball*	1.7	8.1	4.9	0.2	0.9	0.6
Volleyball*	1.7	8.1	4.9	0.7	0.4	0.6
Instrumental sports activities	1.2	1.9	1.6	1.1	2.3	1.7
Number of total individuals	12 959	12 150	25 109	12 959	12 150	25 109

* These activities are all in the activity code of "games with ball", as a result the values are same for them. They aren't comparable with the questionnaire result.

In the individual questionnaire for these questions also it's asked whether persons did this activity in the last 4 weeks or not. Only walking, jogging activity proportion is more in the diaries with 13.4% for total than questionnaires with 8.3% for total in Table 5.28. Its reason can be without aiming sports, a person can do walking many times in a day, in the diaries walking isn't asked as sports as in the questionnaire. This reflects in the diaries. The difference between men and women is larger in diary results with the difference of 5.5 points for walking by diaries while 0.6 points by questionnaire. Generally, it's noticed that women do less sports than men. Social desirability effect, time interval differences and the possibility that every activity may not be recorded to the diaries can be results of the difference in general.

Indicator Group 9: Social Activity

In free time, many persons who have time and money do social activities for relaxing, getting rid of stress and entertaining on the remaining time after the workload and personal care time. For work-life balance and life quality, this is an important topic. In Table 5.29, time use diaries data was arranged for the question asked in the Income and Living Condition survey on leisure time activities.

117

Indicator 9.1

In Table 5.29, information on persons' participation in, leisure time activities as sports, cinema, concerts is regularly shown.

Table 5.29. Proportion of individuals who participate leisure time activities as sports, cinema, concerts regularly (Ind. 9.1)

(15 + aged)	TUS 2014-2015 Diary Results		Income and Living Conditions Survey 2014	
Sex	**%**	**Number of individuals**	**%**	**Number of individuals**
Female	16.5	11 732	16.8	31 253
Male	27.6	10 920	23.5	29 272
Total	22.0	22 652	20.1	60 525

In income and living conditions survey, all leisure time activities are included in one question as a whole. As a result, this calculation was done for taking into consideration all of them in time use diaries. It's seen that the total results are similar in two surveys with 22% by diaries and 20.1% by the survey results in Table 5.29. The difference between men and women as apparent with men's majority and this difference is more in diaries with 11.1 points than the difference by survey results with 6.7 points. When we think about the other tables we discussed before, it can be said that diaries reveal the differences between men and women in a more realistic way than in the real life. It can be stated that while men's 27.6% participate in leisure time activities like sports, cinema, concerts regularly, this proportion is only 16.5% for women when we consider diary results. It can be commented as men do leisure time activities much more than women in real life as in this table too.

Indicator 9.2

In Table 5.30, information on persons participating in social activities is shown by the name of social activities.

Table 5.30. The proportion of individuals who participate to social activities (Ind. 9.2)

(10 + aged)	TUS 2014-2015 Diary Results			TUS 2014-2015 Individual Questionnaire		
Social activity	**Female %**	**Male %**	**Total %**	**Female %**	**Male %**	**Total %**
Going to cinema	1.3	1.4	1.3	0.5	0.6	0.5
Going to theatre*	0.5	0.3	0.4	0.1	0.1	0.1
Going to concert*	0.5	0.3	0.4	0.1	0.1	0.1
Going to art exhibition, museum etc.	0.1	0.1	0.1	0.1	0.1	0.1
Going to library	0.2	0.2	0.2	1.1	1.0	1.1
Participating in sports activities as a spectator	0.2	1.5	0.8	0.3	1.4	0.8
Visiting relatives*	44.6	24.9	34.8	37.1	32.5	34.8
Visiting friends*	44.6	24.9	34.8	26.7	22.9	24.8
Reading book**	20.4	14.5	17.5	38.2	30.2	34.2
Reading newspaper, magazine etc.*	4.4	10.1	7.2	30.1	48.8	39.4
Watching TV**	93.0	92.9	92.9	93.6	95.6	94.6
Listening to radio**	6.7	4.8	5.7	36.1	43.2	39.6
Going to places of entertainment and socializing (bakeries, coffee shops, cafes, bars, taverns, etc.)	9.5	36.3	22.8	7.5	24.7	16.0
Number of individuals	12 959	12 150	25 109	12 959	12 150	25 109

* The same activity code is in time use diaries for going to theatre and concert, visiting relatives and friends. As a result, the durations are the same for them.

** In these activities it's asked whether persons did this activity in last 4 weeks or not. But for the persons who did this activity, the number of the activities in last 4 weeks weren't asked for the different structure of the activity. As a result, these results are the values for the persons who did this activity in last 4 weeks rather than who did this activity once a week.

The number of social activities was asked in TUS individual questionnaire. Only for some activities indicated with ** the number of the activities in the last 4 weeks weren't asked for the different structures of the activity as stated in the footnote of Table 5.30. The diary results are slightly more than questionnaire results in Table 5.30 for most activities other than the activities indicated with ** which are the results for the last 4 weeks rather than for one week as stated in table footnote. As a result, it's understandable that in activities with **, the questionnaire results are more than diary results.

When analyzing in terms of sexes in Table 5.30, it's noticed that in some activities the difference between men and women is larger in time use diary results as in some previous tables. In visiting relatives/friends activity (women more) (19.7 points) and going to places of entertainment and socializing (men more) (26.8 points), in time use diary results there is a sharp difference. In questionnaire results, the proportions are similar for men and women with about 5-point difference.

When leisure time results were evaluated, it was discovered that by TUS diaries' matrix structure many results could be obtained for comparing with the questions of the other data sources. Contextual information as with whom, location of the activity, hours of the activity in addition to the activity data were used for obtaining new indicators from TUS diaries. Also, according to the details asked in the questionnaires, the activities were arranged from the activity coding list. Durations were also calculated from the diaries in addition to the proportions. The difference between females and males was larger in diaries than in other data sources. Social desirability and item missing data could be the reasons for these. In TUS individual questionnaire, the questions were asked mostly for the last 4 weeks. Diaries have the disadvantage of obtaining irregular/infrequent activities due to one week diaries.

5.4. Time Intensity

In this section, firstly the benchmarks of work-life balance which are paid, unpaid work, personal care and free time results from time use diaries were shown. Total work-load and proposed indicators from these variables were shown to have a

general insight on the balance between the activities in a day. Then the other results on time intensity from the data sources were represented.

Indicator Group 10: Paid, Unpaid Work, Personal Care and Free Time

In the first section of the analysis chapter, for paid work, unpaid work, only one dimension could be searched for the reason thatthe survey questions were on paid work or unpaid work. As a result, those results reflect only one dimension on the measurement of work-life balance.

On the other hand, in this section, all of the dimensions showing the balance of life were listed together due to the time use diaries' different data collection methodology. Time spent on different components of life reflected the balance or imbalance in the total of life.

Indicator 10.1

In Table 5.31 time spent for benchmarks of work-life balance was shown. Moreover, the time spent on total workload (paid and unpaid work) was shown for revealing the total work of individuals.

Table 5.31. Average time spent on paid, unpaid work, personal care and free time (hours) in a day (Ind. 10.1)

TUS 2014-2015 Diary Results						
(10+ aged)						
Employment status	**Paid work Hours**	**Unpaid work Hours**	**Personal care Hours**	**Free time Hours**	**Total workload Hours**	**No. of ind.s**
Female	01:09	04:23	11:36	04:31	05:32	12 959
Male	03:59	00:55	11:31	04:58	04:55	12 150
Employed	05:52	01:37	10:56	03:41	07:29	10 314
Unemployed	00:10	03:25	12:01	05:30	03:35	14 795
Female Employed	04:32	03:35	10:53	03:17	08:07	3 151
Unemployed	00:05	04:38	11:50	04:54	04:44	9 808
Male Employed	06:25	00:49	10:57	03:51	07:14	7 163
Unemployed	00:20	01:05	12:22	06:38	01:25	4 987
Total	02:33	02:40	11:34	04:44	05:14	25 109

Note: Due to paid work (employment) activity includes "looking for work activity" in the activity list, for the unemployed persons there is duration for paid work hours also.

Employed men spend time on paid work with 06 hours 25 minutes and unemployed women spend time on unpaid work with 4 hours 38 minutes mostly in a day. The group who spend the least time in a day on personal care and free time is employed women with 10 hours 53 minutes on personal care and 3 hours 17 minutes in free time. Unemployed men seem to have the most time for these with 12 hours 22 minutes on personal care and 6 hours 38 minutes in free time.

Employed women have the most total workload with 8 hours 7 minutes. An important part of it is originated from unpaid work with 3 hours 35 minutes. Unemployed men have the least total workload with 1 hour 25 minutes. The difference in unpaid work between women and men is 3 hours and 28 minutes with 4 hours 23 minutes for women and 55 minutes for men which is remarkable.

It can be commented as, if there wasn't unpaid work in the table, it would seem that mostly men have the workload. But thanks to the time use diaries, the huge time that women spend time on unpaid work which is the source of work-load of women is

revealed. It can be concluded from this table that even if women participate to work life, unpaid work time doesn't decrease as much as it should be.

Indicator 10.2

The indicator of "All persons, ratio of all work time (employment + unpaid) to leisure time including primary and secondary activities" is a key indicator for reflecting work-life in a holistic way. Because it gives information on the proportion of total workload and leisure time. If the ratio value is high, it shows the imbalance in work life, if it's low, it shows a well work-life balance.

Table 5.32. Ratio of all work time (employment + unpaid) to leisure time (Ind. 10.2)

TUS 2014-2015 Diary Results (10+ aged)			Number of individuals
Employment status			
	Female	1.2	12 959
	Male	1.0	12 150
	Employed	2.0	10 314
	Unemployed	0.7	14 795
Female	Employed	2.5	3 151
	Unemployed	1.0	9 808
Male	Employed	1.9	7 163
	Unemployed	0.2	4 987
	Total	1.1	25 109

In the results, it is apparent that employed women are the most disadvantaged group in the work-life balance with the highest ratio of 2.5 in Table 5.32. Respectively employed men seem to have a low work-life balance with 1.9. Unemployed men are the most advantaged group in the work-life balance with the lowest ratio of 0.2. From other surveys, this indicator can't be acquired easily. Even if there are questions asking about employment, unpaid work, leisure time durations in a week or a day, because recalling the total duration of each of them is difficult to answer, it may not reflect the real life of the persons.

Indicator 10.3

In Table 5.33, the "Time devoted to leisure and personal care" indicator was shown (OECD, 2017). In the personal care, there are sleeping, eating activities time also. Average time in a day on a total of personal care and leisure time are summed up for calculating this indicator.

Table 5.33. Total time spent on personal care and leisure time (Ind. 10.3)

TUS 2014-2015 Diary Results		
(10+ aged) **Employment status**	**Hours**	**Number of individuals**
Female	16:07	12 959
Male	16:29	12 150
Employed	14:37	10 314
Unemployed	17:30	14 795
Female Employed	14:11	3 151
Unemployed	16:44	9 808
Male Employed	14:48	7 163
Unemployed	19:00	4 987
Total	16:18	25 109

If the value is low, it shows relaxing and entertaining time are few and it reflects an imbalance in work-life balance. It's seen in Table 5.33 that employed women have the least value of 14 hours 11 minutes and unemployed men have the most value of 19 hours for personal care and leisure time coherently with Table 5.32. Similarly to Table 5.33, from other surveys, this indicator can't be acquired easily.

Indicator Group 11: Intensive Time

In this section, the results on the subject of time intensity as time allocated for the own and time sufficiency were shown.

Indicator 11.1

The recommended output in "UNECE Guidelines for Harmonizing Time-Use Surveys" for outputs in Work-Life Balance concept which is in the heading of "Time Crunch", is "*Proportion of all persons who feel stressed most or all of the time"* and in the guidelines, it's stated that the "Question collecting perception of time pressure, such as how often do you feel pressed for time could be used for this output."

Table 5.34. Proportion of persons by time intensity (Ind. 11.1)

(18+ aged)		TUS 2014-2015 Individual Questionnaire			Life Satisfaction Survey 2014	
Main Characteristics		Persons telling "everyday intensive" %	Persons telling "time isn't enough for weekdays" %	No. of individuals	Persons not satisfied with time allocated for themselves %	No. of individuals
	Female	23.9	25.4	10 946	26.3	4 338
	Male	22.1	28.3	10 141	24.5	3 646
	Employed	31.1	39.0	10 103	31.5	3 336
	Unemployed	15.4	15.2	10 984	20.7	4 648
Female	Employed	34.7	43.1	3 086	37.0	983
	Unemployed	19.8	18.5	7 860	23.2	3 355
Male	Employed	29.6	37.4	7 017	29.6	2 353
	Unemployed	4.3	6.7	3 124	14.9	1 293
Female	Never married	20.7	26.9	1 708	26.2	575
	Married	27.6	27.5	7 768	27.3	3 191
	Divorced	23.6	31.7	338	26.5	152
	Widowed	5.5	7.4	1 132	18.3	420
Male	Never married	20.2	27.0	2 304	20.7	723
	Married	23.4	29.5	7 455	26.8	2 781
	Divorced	21.6	29.0	164	13.9	69
	Widowed	7.3	6.3	218	13.2	73
Female	No school completed	15.1	10.9	2 632	24.0	990
	Prim. school	25.6	25.0	3 936	23.8	1 640
	Prim. educ. / Tech. or voc. junior high school	26.6	28.8	1 337	30.9	510
	Tech. or voc. high school	28.4	33.0	1 745	28.1	643
	Post-sec., faculty, post grad., doctor.	28.7	42.7	1 296	32.0	555
Male	No school completed	8.6	6.3	751	24.5	217
	Prim. school	20.6	23.3	3 671	23.0	1 370
	Prim. educ. / Techn. or voc. junior high school	23.4	29.6	1 725	26.3	675
	Techn. or voc. high school	25.8	33.4	2 294	24.6	724
	Post-sec., faculty, post grad., doct.	24.9	40.0	1 700	25.3	660
	Total	23.0	26.8	21 087	25.4	7 984

For this indicator, data from time use survey individual questionnaire and life satisfaction survey were calculated. In Table 5.34 in the first column "Proportion of individuals who tell that "every day of the week is intensive" is shown by asking the frequency of the intensive days in a week is. In the second column "Proportion of individuals who tell that "time isn't enough for the activities wanted in weekdays" is shown by asking about time is enough or not on weekdays for the activities wanted. In the third column" Proportion of individuals who aren't satisfied with the time allocated for themselves" is shown by asking satisfaction about the time allocated for the respondents. Even though three indicators are slightly different from each other, all of them show the time stress on the individuals and the results seem to be coherent with 23%, 26.8% and 25.4% for total in three indicators. According to the results of Table 5.34, it can be said that employed women mostly have the problem of timelessness and need more time with 34.7%, 43.1% and 37%. Secondly, it can be said that unemployed men are the least busy persons with 4.3%, 6.7% and 14.9%. About the time intensity indicator proposed by UNECE, also there are time use diary results which were shown in the last section of the analysis.

With the questions on time intensity whose results are shown in Table 5.34, time use diaries results could be used together for completing the information on work-life balance and similar social subjects. Because both methods have advantages and disadvantages, using both of them together would give the ideal results from the respondents.

Indicator 11.2

Especially those who don't have work-life balance in their lives can miss some dimensions in their lives. If there was more time, many people would like to do some relaxing/enjoying activities. In Table 5.35, these activities were shown.

Table 5.35. The activities which are wanted to spend time mostly by individuals who don't have enough time in weekdays (Ind. 11.2)

TUS 2014-2015 Individual Questionnaire			
(18+ aged)			
Activities	**Female %**	**Male %**	**Total %**
Personal care (sleeping, eating, dressing, bathing etc.)	11.9	8.7	10.3
Working at a job	5.3	4.5	4.9
Continuing education (school, course, lesson etc.)	4.7	3.6	4.1
Household and family care (food preparation, house cleaning, childcare etc.)	5.8	5.8	5.8
Voluntary work and meetings (private individuals, associations, clubs, etc.)	2.4	1.2	1.8
Social life and entertainment (visiting relatives, theatre, cinema etc.)	19.6	20.5	20.1
Resting and vacation	39.6	44.0	41.9
Sports	4.1	5.1	4.6
Hobbies and games	2.8	3.4	3.1
Transportation	2.9	2.5	2.7
Other	1.0	0.8	0.9
Total	100.0	100.0	100.0
Number of individuals	2 766	2 800	5 566

It's seen that most people need resting and vacation activities if they had more time in Table 5.35 with 39.6% for women, 44% for men and 41.9% for total. Social life and entertainment are needed in the second order with 19.6% for women, 20.5% for men and 20.1% for total. Personal care (sleeping, eating, dressing, bathing, etc.) is needed in the third order with 11.9% for women, 8.7% for men and 10.3% for total. It can be commented as without resting and relaxing, there isn't energy for socializing.

When we evaluate time intensity section, it's clear that TUS data was the primary data source by producing many indicators. While from the other data sources, one dimension of life could be obtained, from TUS a holistic viewpoint can be acquired. Duration of unpaid work, personal care and free time can be produced only from TUS diaries. By the duration of unpaid work, total workload (paid and unpaid work) can be calculated that is highest in employed women according to the results. TUS individual questions on time intensity produced important information on work-life balance that is very beneficial when used with TUS diaries.

5.5. Results of Recommended Indicators on Work-Life Balance

Produced indicators for measurement of work-life balance which were recommended by UNECE and OECD were shown in different sections of Chapter 5 according to the content of it. In Table 5.36, the whole list of these indicators was shown for summarizing the results of them. The main data source is Time Use Survey diary data for the indicators and results of alternative sources were also shown.

Table 5.36. Results of recommended indicators by UNECE/OECD for work-life balance

Thematic areas	Indicators	TUS Diary Data			Other source		
		Female	Male	Total	Female	Male	Total
Employment	1.1 Proportion of persons who did employment work (for pay or profit, i.e. were engaged in any activity to produce goods or provide services as part of a transaction in exchange for remuneration payable in cash or in kind) by hour of the day 1.2 Proportion of persons who did employment work, who undertook secondary activities simultaneously	The graphic showing the proportions was disseminated by TurkStat. The graphic was shown in this study, this table can be calculated. In TUS, 2014-2015 data there isn't secondary activity data.					
Non-standard employment working time	2.1. Proportion of persons who did employment work outside of "normal schedules" (e.g. before 8 a.m. or after 6 p.m.). 2.2 Proportion of persons who did employment work on weekends 2.3 Proportion of persons who did employment work performing noncontinuous work	48.5 56.1 Can be calculated by time use diaries only for lunch or other meals. Tea/coffee breaks aren't given in microdata.	56.9 62.3	54.7 60.6			
Time crunch	3.1 Proportion of all persons who feel stressed most or all of the time 3.2 All persons, average proportion of time when more than one activity undertaken concurrently 3.3 All persons, ratio of all work time (employment + unpaid) to leisure time including primary and secondary activities.	(TUS Individual Questionnaire) 23.9 In TUS, 2014-2015 data there isn't secondary activity data. 1.2	22.1 1.0	23.0 1.1	Life Satisfaction Survey 2014 26.3	24.5	25.4
Breaks from employment work: job time/non-job time	4.1 Average time spent on all types of breaks from employment work (by type of break (e.g. lunch; morning/afternoon tea) for persons who did employment work 4.2 Average continuous working time between breaks taken, for persons who did employment work 4.3 Average time spent on non-productive activities in employment by type of pause/break/activity for persons who did employment work	Can be calculated by time use diaries only for lunch or other meals. Tea/coffee breaks aren't given in microdata.					
Intrusion of employment work into other activities	5.1 Average time spent undertaking employment work at home or during travel for persons who did employment work	Can be calculated by time use diaries					
Weekend employment work	6.1 Proportion of all persons who undertook employment work on weekend days 6.2 All persons, average time spent undertaking employment work on weekend days 6.3 Average time spent on employment work on weekend days, for persons who undertook employment during the weekend	12.0 00:12 01:36	35.8 00:46 02:09	23.8 00:29 02:01			
Time spent with family	7.1 All persons, average time spent on activities with family members 7.2 All persons, average time spent on activities with family members without employment-related activities 7.3 Average time spent on activities with family members, for persons who did employment work 7.4 Average time spent on activities with family members without work-related activities, for persons who did employment work	08:36 08:25 08:19 07:29	07:30 07:09 07:51 07:16	08:03 07:48 07:59 07:19			
Better Life Index	8.1 Employees working long hours 8.2 Time devoted to leisure and personal care	27.2 16:07	48.6 16:29	42.8 16:18	Labor Force Survey, 2014 25.5 —	44.9 —	39.1 —

Table 5.36 shows the productivity of TUS diaries for that it enables to inform policies with many kinds of indicators on the work-life balance. TUS diaries are the

main data sources and TUS Individual Questionnaire, Life Satisfaction Survey and Labor Force Survey are the other data sources that the indicators could be obtained from. Many indicators have been calculated with the help of contextual information taken from diary data as with whom, where and when that are the major advantage of TUS diaries. Indicators mostly reflect time spent and proportions of the population doing that activity and of all of the population whether they did or did not do that activity. The deficiency of secondary activity data and detailed activity codes in TUS microdata results in that some indicators couldn't be produced. It would be very contributing to have information about work-life balance if there were data on secondary activities and more detailed activity coding.

CHAPTER 6. CONCLUSION AND DISCUSSION

This study aimed to understand the methodological contributions of Time Use Survey (TUS) to Work-Life Balance measurement. For doing this, the indicators that give information on Work-Life Balance, including recommended ones by international institutions such as UNECE and OECD were taken as reference points. The indicators were tried to be calculated by time use diaries and other surveys that produce data on Work-Life Balance.

All data sources produce estimates on work-life balance for Turkey and these were conducted by national institutions that have standard data collection methodology. Time Use Survey (TUS), Labor Force Survey (LFS) and its modules that produce data on work-life balance, Turkey Health Survey (THS), Life Satisfaction Survey (LSS), Income and Living Conditions Survey (ILCS) and Family Structure Survey (FSS) were used as data sources.

Methodological comparisons of time use survey diaries and other surveys were performed and in many stages of quantitative research methodology there were differences between TUS diaries and other surveys from their conceptual analysis to their data collection methods. Sampling sizes, distributions and frequency of conduction of the surveys differ according to their aims. The major difference is in the questionnaire design that affects the type of survey, data analysis and data dissemination. In TUS diary method, instead of stylized questionnaires, respondents fill diaries for 24 hours with the activities they perform. There is contextual information parallel to activity, where, with whom and when for each activity. It gives the possibility of having rich information about the life of the individuals.

For the analysis, all the indicators on work-life balance including recommended ones by UNECE and OECD were calculated by the data sources and represented under the headings of paid work, unpaid work, leisure time and time intensity. To understand the advantages and disadvantages of TUS diaries, the results that were comparable with the diaries were brought together and shown in the tables.

TUS individual questionnaire was also used in the calculations in comparison due to its stylized questionnaire.

Among the results; in working hours results there were larger differences between the proportions of women and men in diary results than stylized questionnaires. Working hours that resulted from time diaries were less than other results. In flexible working results, TUS diaries produced many indicators using the contextual information of the diaries as with whom, when and where. Proportions in the concept of working at home were larger in the diaries than other sources.

In most of the unpaid work results, there were larger differences between the results of females and males in diary results than other data sources similar to paid work results. In the results on leisure time, contextual data and detailed activity list enabled a great advantage on time diaries that the activity asked in other questionnaires were able to be produced by means of them. Again, the difference was larger between females and males in the diaries. Most of the time intensity results could be obtained from TUS diaries. It was impossible to get holistic information on durations of paid work, unpaid work, leisure time and personal care with other data sources. The total workload was produced by TUS diaries showed that employed women have the highest values.

When we consider the advantages of time use diaries, we see that time use diaries produce a large number of indicators on work-life balance due to its different questionnaire design. Diaries enable the production of results including contextual information on the activities such as working at home, working on the weekend, working individuals by the hour, time spent with family, having breakfast with family, walking for going from somewhere to another place (as traveling rather than activity of walking), etc. Both the proportions of individuals performing the activities and time spent for them can be calculated. Recommended indicators by UNECE and OECD for measuring work-life balance can be calculated by time diaries for the mentioned characteristics. The fact that respondents write the activities with their own words to the diaries gives the freedom to obtain richness in results. The stylized questionnaires

of the other data sources don't have this ability for the restricted questions and answers structure.

Time use diaries produce data on many concepts because the diary data consists of all of the activities the respondent does in 24 hours from sleeping to socializing or working. It includes all dimensions in life related to work-life balance. In addition to the contextual information of the activities, the activity coding list enriches the details of activities (Budlender, 2007). From the stylized questionnaire, we can only obtain information on activities that were asked as questions with the details determined within the question. In the results of other surveys, there was only one dimension regarding work-life balance depending on the survey's aims as in the example of working hours in the labor force surveys or sports time in health surveys.

About the concept of unpaid work, the time use survey enabled us to analyze the duration of total unpaid work that couldn't be calculated from other data sources. In other surveys, there was information on unpaid child care or adult care but not on the total unpaid work that includes care work, housework and voluntary work. By using time spent on unpaid work, the total workload could be calculated from TUS diaries which takes an important part of work-life balance. It was seen that employed women had the most workload. In addition to time spent on unpaid work and paid work, leisure time and personal care times were calculated from the diaries that were used in calculating new striking work-life balance indicators. The proposed indicator for work-life balance by UNECE, which is the proportion of workload to leisure time was highest in employed women. It can be commented as by time use diaries, the invisible data was coming into view. Thanks to the time use diaries, the huge time that women spend on unpaid work which is the primary source of work-load for women is revealed. To see the gender inequalities in work-life balance, these indicators are valuable.

In addition to the diversity and the large number of indicators that TUS diaries produce, data quality of them is higher than the other surveys. In literature, there are studies comparing diary and other data collection methods in terms of data quality. In stylized questionnaires, there may be social desirability bias and low recall effect due

to the type of survey and questionnaire effect (Budlender, 2007). It's known that respondents can be affected by the interviewers and exaggerate or understate the results according to how they would like to be seen by the interviewers. This creates a bias error which occurs in face to face interviews that were used in the other surveys than time use diaries. People can overreport time spent on some activities on the answers of questionnaires to seem adhere by the interviewers (Schulz and Grunow, 2012). TUS diaries are filled by self-administration method in which this effect is smaller. Questionnaire design also causes this effect in stylized questionnaires as in that a question is asked for the total duration of an activity in a week or a month while in the diaries the respondent has to write all the activities that s/he does for 24 hours in the diary (Stewart, 2014). In the analysis, the reason for the difference in some results between diary and other data sources is considered to be the social desirability effect. Gershuny and Robinson compared the results of working hours from TUS diary and estimated time spent for it from stylized questions of employed persons. In the findings, estimated time spent from the questionnaire was found generally inaccurate, because overestimations were usually found (Gershuny, Robinson, 1994). According to Budlender (2007), respondents exaggerate the durations of activities of which they think are popular and understate the unpopular ones. Hirway (2007) states similarly that workforce data can be produced by the diaries in a more reliable way than Labor Force Survey in her study since the activities are collected for 24 hours in the diary and that a proper activity classification in time diaries can remove methodological biases.

Low recall effect can occur in stylized questionnaires for trying to estimate the total hours of an activity in a week. It's difficult, to sum up the activities done in a week especially if it's an intermittent activity such as housework. In TUS diaries, it's expected that the respondent writes the activity just after s/he finishes that activity. Which means, recall effect bias doesn't occur. In literature, it's written that time use diaries give more information that isn't registered, formal, visible. TUS also enables results on not clear works such as temporary work, subsistence work and informal work (Merz, 2009). Bonke (2002) states that the difference between the results of diaries and stylized questionnaires is larger in unpaid work than the difference in paid

work. Bonke explains the reason for this is that unpaid work consists of many short time parts.

It was mentioned that there were larger differences in many results between females and males from diaries than other surveys. Furthermore, there were some other differences in results between diaries and others as fewer working hours occurred in diaries than labor force survey or fewer adult care work duration occurred in diaries than health survey. These are considered to be results of social desirability effect and low recall effect bias in stylized questionnaires. TUS diaries reveal differences between females and males in a realistic manner conspicuously, which contributes to getting information on gender inequalities.

On the other side, the disadvantages of TUS diaries became clear in this study. In comparison of diaries with TUS individual questionnaire, it was seen that participation and the total number of some activities were asked for the last 4 weeks or the last 4 months in the questionnaire. TUS diaries give information for one weekday and one weekend day that give results for one-week by weighting the days. Consequently, an infrequent or irregular activity may not be seen in them. The questionnaire has the advantage of collecting information for these activities. Fisher and Layte (2002) agree that TUS diaries can produce more qualified data on short term activities done in a day or a week, but they can't do this for infrequent activities that were done in long intervals. TUS individual questionnaire has been found to be very useful for complementing diary data in this respect.

The number of different activities (episodes) shows the data quality of TUS diaries. Few numbers of episodes show low data quality due to the fact that the respondent may not write all of the activities that s/he did in the diary day. There is the possibility of an activity missing in the diaries even if the respondent did it. In National Research Council's report (2000), some activities were stated as they could be missing in the diaries as activities that respondents don't want to record on the diary or infrequent activities. In direct questionnaires, since each question is asked by the interviewer there is not such a matter. This may be the disadvantage of the data

collection with the diaries and could be another reason for the difference between the results of diaries and other surveys.

TUS is a costly survey and respondent load is high according to the stylized questionnaire due to the obligation of filling the diary for two days. Furthermore, the time for data collection, processing and analysis is long. It's assumed that activities of the society don't change in a short time and time use differences can be noticed in long time intervals, TUS is conducted between ten years. This restricts the availability of the data for the decision makers and researchers. In some developed countries, smart devices are used for collecting time use data as new technologies develop instead of classical paper and pencil diaries. Mobile or web applications in time use survey decreases the respondent's burden, time spent on data collection, analyzing data process. In future, similar studies can be used for time use surveys in Turkey that may increase data quality.

To sum up, how much TUS survey contributed to measuring work-life balance has been discovered by this study. TUS reveals gender inequalities by reflecting the real differences between females and males with higher data quality. Furthermore, it produces a large number of work-life balance indicators by diary structure with contextual information that no alternative data source could produce. Among these indicators, time spent on unpaid work has great importance that concerns primarily women in terms of revealing the total workload of women. From TUS diary results, employed women were found to have the most workload due to how much time is spent on unpaid work in addition to their paid work durations contrary to the situation of men. When we look at the results found in this study, women work (paid and unpaid work) in one day 37 minutes more than men in Turkey as total workload. In OECD countries, on average women work (paid and unpaid) 25 minutes more than men. Women spend time on unpaid works around 3.5 hours more than men in Turkey. In OECD countries, women work around 2 hours more than men in unpaid works on average. Men spend time on paid works around 3 hours more than women in Turkey. In OECD countries, men work around 1 hour and 40 minutes more than women in paid works on average (OECD, 2020). These results apparently show that the gender gap

in Turkey is sharper than OECD countries' average results and time pressure on women is higher. Accordingly, policies on balancing work and life primarily for women is crucial for their life quality in our country.

In many countries, instead of diary recording, questionnaires are used for collecting data on time use by the interviewers asking the total duration for an activity in a week. As explained, there are many disadvantages of this method according to the diaries. In Turkey, the diary recording method is used by the TurkStat which is the recommended method by the Eurostat and the UN. This is a good chance for our country. For improving the variety and quality of the outputs by Turkey TUS, it is suggested to the TurkStat to disseminate secondary activities in the next conduction of the survey for the researchers as well as the decision makers. It was learnt that its reason was the secondary activity data isn't qualified enough to be disseminated. But as in the work-life balance concept, multitasking is important especially for women who work informally and work at home more than men. For some work-life balance indicators, multitasking data obtained from secondary activities are needed for explaining time intensity and all activities done in 24 hours.

In some countries, light diaries are used to obtain current time use data after 5 years from full diary implementation. Even if, it has a lower data quality according to full diaries, it enables us to get timely data source on time use of the society. Light survey implementation can be evaluated for this aim by the responsible institutions. It was seen that some surveys were conducted in Turkey with a work-life balance scale. But they weren't national surveys and results were limited. Moreover, as seen in this study there were module surveys of Labor Force Survey about Work-Family Balance and Work-Life balance. Their results are very valuable but their conducting frequency is low. Module surveys could be implemented with a regular survey which is conducted frequently and it could include questions on time use survey asking durations for some activities such as unpaid work, leisure time and personal care. This would be very beneficial to obtain rough data on many subjects. Furthermore, independent surveys could be implemented including questions on work-life balance

as in the "Gender Barometer survey" and the "Quality of working life survey" conducted in Finland for these aims (Pääkkönen, 2020).

With TUS diary data not only the time spent on paid work, unpaid work, leisure time, time with family but also where it's acquired can be used; the starting and ending time of paid work is as important for seeking to balance work and life (Bauer et al., 2007). By using TUS, family-friendly policies can be adopted, the availability of care services for children and other dependents, leave facilities (such as parental leave, career breaks or reduction in working time), flexible working arrangements (such as part time, flextime, telework, homework, job sharing) can be increased by the decision-makers (UNECE, 2010).

It's known that in some developed countries such as Japan and Finland, time use data were used for developing policy on Work-Life Balance like the example of time use data that have been used to monitor the implementation of the "Charter for Work-life Balance" and the "Action Policy for Promoting Work-life Balance" which was adopted in 2007 in Japan. National programme to increase the attraction of work life in Finland used time-use surveys to ensure that the working week of older people is shortened and systems are put in place to make paid working time more flexible (Hirway, 2010, as stated in UNECE, 2013). It's recommended for the decision makers to use time use survey data for developing new policies on work-life balance in Turkey.

This study draws attention to the connection between time use survey and work-life balance measurement by comparing it with the other data sources. In Turkey, this is the first study on this subject. This finding is expected to be helpful and inspirational for the researchers on searching other dimensions of time use survey and work-life balance in detail. Since there is a further potential of time use survey to be discovered.

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APPENDIX

APPENDIX-A FULL TIME DIARY EXAMPLE (HETUS)

DIARY page 1/8

Time	What were you doing? *Record your main activity for each 10-minute period from 04.00 to 07.00!* Only one main activity on each line! Distinguish between travel and the activity that is the reason for travelling.	What else were you doing? Record the most important parallel activity. Indicate if you used, in the main or parallel activity, a computer or Internet. You do not need to record the use of a computer or Internet during working time.	Where were you? Record the location or the mode of transport e.g. at home, at friends' home, at school, at workplace, in restaurant, in shop, on foot, on bicycle, in car, on motorbike, on bus, ...	Were you alone or together with somebody you know? Mark "yes" by crossing					
				Alone	Partner	With other household members			
						Parent	Household member up to 9 years	Other household member	Other persons that you know
04.00-04.10				☐	☐	☐	☐	☐	☐
04.10-04.20				☐	☐	☐	☐	☐	☐
04.20-04.30				☐	☐	☐	☐	☐	☐
04.30-04.40				☐	☐	☐	☐	☐	☐
04.40-04.50				☐	☐	☐	☐	☐	☐
04.50-05.00				☐	☐	☐	☐	☐	☐
05.00-05.10				☐	☐	☐	☐	☐	☐
05.10-05.20				☐	☐	☐	☐	☐	☐
05.20-05.30				☐	☐	☐	☐	☐	☐
05.30-05.40				☐	☐	☐	☐	☐	☐
05.40-05.50				☐	☐	☐	☐	☐	☐
05.50-06.00				☐	☐	☐	☐	☐	☐
06.00-06.10				☐	☐	☐	☐	☐	☐
06.10-06.20				☐	☐	☐	☐	☐	☐
06.20-06.30				☐	☐	☐	☐	☐	☐
06.30-06.40				☐	☐	☐	☐	☐	☐
06.40-06.50				☐	☐	☐	☐	☐	☐
06.50-07.00				☐	☐	☐	☐	☐	☐

APPENDIX-B LIGHT TIME DIARY EXAMPLE

	What were you doing at different times of the day?	4:00					5:00					6:00				
		10	20	30	40	50	10	20	30	40	50	10	20	30	40	50
Personal care	Sleeping, napping															
	Resting															
	Washing, dressing, sauna, personal hygiene, make-up															
	Meals, snacks, coffee															
Gainful work and studying	Gainful work (also at home, unpaid overtime, excl. meal breaks)															
	Studying, also during free-time (e.g. homework, music lessons, courses)															
Travel	Travel (to work, school, shop, gym, or the like, also on foot)															
Domestic work	Cooking, preparing snacks, dish washing															
	Cleaning and tidying, taking goods out, packing															
	Home maintenance (gardening, snow clearing, heating)															
	Caring for textiles (laundry, ironing, handicrafts, etc.)															
	Refurbishments and repairs, construction, car service, etc.															
	Shopping and use of services (online shopping is recorded under computing)															
	Caring for and helping family's children															
	Playing and reading with children, teaching children															
	Other domestic work (helping a family member, pet care, planning)															
	Helping relatives or acquaintances (also caring for another family's children)															
Socialising	Socialising with family (only when something is not done together)															
	Socialising with friends at home or in their home (only when something is not done together)															
	Socialising with friends elsewhere (in the street, cafe or the like)															
	Phone calls and text messages during free-time															
Participation	Activity in organisations, voluntary work, religious activity, parents' evenings, etc.															
	Attending cinema, sports events, fairs, exhibitions, library, concerts, etc.															
Sports and outdoor activities	Outdoor activity and walking (also with dog. Going to work on foot is recorded under travel)															
	Other physical exercise hobby (jogging, gym, ball games, swimming, etc.)															
	Fishing, berry or mushroom picking, hunting															
Computing	Computer games (incl. Play Station, X-box, Nintendo)															
	Other computing during free-time (Internet, email, online shopping, etc.)															
Media	Reading a book (excl. books related to employment or studying)															
	Reading printed media, brochures, post, etc.															

Source: Statistics Finland (2018) Full diary vs. light diary study results (Pääkkönen, 2018)