INTRAHOUSEHOLD RESOURCE ALLOCATION: 
STATUS OF WOMEN AND INVESTMENT IN CHILDREN, 
A REGIONAL COMPARISON IN TURKEY 

RESEARCH PROPOSAL 

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TURKEY 

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1. Abstract

In this project we propose to carry out an empirical research that test for the existence of bias in intra-household resource allocation. More specifically, whether non-pooled income within the household could lead a bias in terms of investment expenditures for children will be tested by focusing on the relationship between the status of women such as; education, employment, assets, social status and investment expenditures for children.

“Unitary household” models that assume a common preference for the household members and a pooled resource within the household have been questioned in the empirical literature and initiated the use of “collective models” which allow implementation of methodological individualism. “Collective models” can be distinguished along the hypothesis about preferences, interdependence and resource allocation within the household and the assumptions about social norms and socio-cultural factors. Hence, we built our research question basing on the theoretical and empirical considerations put forward both by adherents and opponents of “collective model” approach and our “collective model” focus on the possible bias that may arise in resource allocation within the household.

The empirical approach that is going to be used in the research draws on the analyses by Hoddinott, and Haddad (1995) and Roushdy (2004). While the first one estimates expenditure shares of various commodity groups basing on household, regional and demographic characteristics together with income source in a Working-Leser type expenditure function, the second one estimates individual child outcome basing on characteristics of the child, the parents, the status of woman together with regional specifics. We propose in this research to estimate expenditure shares of various commodity groups and particularly child related expenditures basing on household, economic, regional, demographic, social, parental characteristics together with source of income.
2. Main Research Questions and Core Research Objectives

Main Research Questions

The following questions will be placed in the focus of the research and will be answered:

1. Does gender difference have significant impact on expenditure patterns?
2. Does economic status of woman affect expenditure patterns in the household?
3. Does social status of woman affect expenditure patterns in the household?
4. Which factors affect the variation in expenditure for children?
5. Does variation in economic and social status of woman significantly impact expenditure for children?

Core Research Objectives

With this research we aim at achieving two main objectives:

1. In Turkey, it is argued that or it is a common belief that “woman’s position in the household or the role attributed to woman in the household does vary depending on the regional differences in traditions and culture”. These differences shape the individual and societal status of woman and influence economic status as well. In this research, we aim to find out whether there is empirical evidence behind the above argument. By doing so we aim at clarifying woman’s role in intra-household resource allocation and woman’s particular impact on investment in children.

2. Since 2001, Turkey has been implementing the Social Risk Mitigation Project (SRMP) to reduce poverty in the short to medium-terms and to mitigate the severe negative effects of the February 2001 economic crisis and to create mechanisms for the poor to cope with the shock to their lives. Conditional Cash Transfers (CCT) is a component of the SRMP targeted to the poorest six percent of the population, “conditional” on improved use of basic health and education services for children. These transfers are given to mothers in order to raise the status of women within the family and with the expectation and assumption that the “condition” will be fulfilled. With this research, we aim to find out whether CCT stays on a solid ground, in other words whether empirics support the way CCT is implemented.
3. Scientific Contribution of the Research, Key Literature References and Knowledge Gaps

Scientific Contribution of the Research

From the empirical point of view the specific contribution would be the inclusion of gender-based variables in the Working-Leser type expenditure function.

From the practical point of view the specific contribution would be the derivation of gender-based impacts in intra-household resource allocation and particularly in investment expenditures for children in Turkey.

Knowledge Gaps

In the relevant international literature, previous studies have concentrated on the effect of woman’s status on the demographic behavior and outcomes from the sociological point of view. Many studies in development economics focused on the effect of woman’s level of education and employment on children health, survival and schooling and many others tested the “income pooling” hypothesis. However, only a few studies have focused on the relationship between woman’s status and investment in children and on the effect of variation in woman’s status on household expenditure patterns.

According to Durrant and Sathar (2000) a common failure is that most of the studies are ignoring the macro level differences in women’s status. It is impossible in these studies to identify whether it is the created environment or woman’s individual choices that affect woman’s decision regarding children’s wellbeing. Therefore, a crucial point is to find out whether the empirical work adequately captures the specific cultural contexts in which individuals within household make decisions.

In the relevant literature in Turkey, existence of the bias in intra-household resource allocation has not been tested yet. In addition, the relationship between intra-household resource allocation and investment in children via the use of “collective models”, has not been tested yet as well. Empirical test of “pooled income” hypothesis that considers the impact of regional divergences has not been achieved yet.
4. Policy Relevance

In 2001 the World Bank approved a huge loan for Turkey for a Social Risk Mitigation Project (SRMP) that will be in place until the end of 2007. The SRMP was implemented in Turkey in an environment in which a risk of ‘social explosion’ was discussed most urgently after a serious economic crisis. This project, along with the reduction of poverty in the short- and the medium-terms, also aims to mitigate the negative effects of the February 2001 economic crisis and to create mechanisms for the poor to cope with the shock to their lives.

“The goal of the SRMP is to strengthen Turkey’s social assistance system so that it becomes cost-effective and better targeted to the most vulnerable segments of the population. The SRMP will help mitigate the impact of the recent economic crisis of February 2001 on poor households and to improve their capacity to cope with similar risks in the future. By supporting the implementation of a system that not only mitigates social risk but helps prevent and manage it, the project will provide a safety-net for the poor and a means to help them escape poverty. The SRMP consists of: (i) an adjustment portion, providing immediate support to the poorest affected by the crisis; and (ii) an investment portion, which consists of three components that will (a) build the capacity of state institutions providing basic social services and social assistance to the poor; (b) implement a social assistance system (Conditional Cash Transfers - CCT) targeted to the poorest six percent of the population conditional on improved use of basic health and education services for children; and (c) increase the income and employment opportunities of the poor. The SRMP will be managed by the Social Solidarity Fund (SSF) and implemented by the 931 Social Solidarity Foundations (SSLF) throughout the country as well as by the Social Services and Child Protection Organization (SSCPO) and the State Institute of Statistics (SIS).”

Three concerns were mentioned in the implementation of the project: i) The economic crisis of February 2001 in Turkey created a social risk environment in which the poor cannot survive on their own. ii) The lack of a social security network capable of reducing unemployment and poverty risk in Turkey. iii) The necessity to ‘use a social security network for the protection of human capital’ because compared to other ‘middle income level countries’, Turkey’s social indicators are hardly refreshing.

The Social Risk Mitigation Project comprises four complementary components, these being rapid response, conditional cash transfers, institutional development and local initiatives. Rapid response was planned to support the aid programs of the Social Assistance and Solidarity Foundations, aimed at poor families. In particular, the aim was to deliver education, food, fuel and health aid to families which were affected by the economic crisis in 2001. The aid will be given to mothers in order to raise the status of women within the family. Conditional cash transfers component was part of the aim to form a social security network covering the poorest six per cent of the population. Within the framework of this purpose, cash aid was intended to be given to families on the condition that they sent their children to school and met their basic health and nutrition needs. Nutrition and health aids to children in the 0-6 age group will be given conditionally for regular vaccination and health checks; and educational aids, within the law of the Ministry of Education, for regular attendance at school.

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1See http://web.worldbank.org/external/projects for details of the project.

The anticipated long- and short-term impacts of Conditional Cash Transfer (CCT) program are different. Currently, besides other financial support and subsidies both in and out of the context of SRMP, this program transfers on the average about 50 YTL per child per month for each child in the selected household. If the exchange rate between YTL and US$ is about 1,4 then 50 YTL is equal to approximately 36 US$ and when average children number of 6 to 10 in various regions of North East Black Sea, South East Anatolia and East Anatolia regions are considered, the amount of monthly transfer observed to be in the range of 214-357 US$ which creates an additional daily 7,1-11,9 US$. If the poorest 6 percent in Turkey is earning less than 2 US$ per day (under poverty line) or some part are earning less than 1 US$ a day (under food poverty line), then obviously the CCT program helped to achieve a better standard of living in the short-term.

In the long-run, the success of CCT was quite dependent on how woman spends the transfer amount. The CCT was delivered to woman with the expectation that they were more sensible and considerate in terms taking care of their children so that for preparing a better life for their children in the future, women were expected to spend these transfers on health and education expenditures. Besides, public schools and hospitals were in charge of taking record of these households' routine visits, expenses, attendance and success etc.

Basing on the above explanations, this proposed project is actually going to provide the scientific evidence, whether in Turkey the woman in the household has some kind of power and/or intention to significantly affect the consumption patterns in the household and to direct expenditures towards child related expenditures and/or towards investment on children. If woman has that power and/or intention to do so, to find out whether their behavior does vary among different regions, is quite a valuable input for policy makers. Besides, if it is found that the power and/or intention of woman do change depending on their economic and social status in the household and in the society, this would also be quite a valuable input for policy makers as well. Therefore, this sort of a research would provide interesting hints on how to deal with severe poverty but more importantly, through which channels to transfer the funds to poor families. The message of our study for the future would be such that the effect of non-pooled resources on policy efficiency would be revealed. Certain policy interventions in developing countries may be more efficient if they are designed by targeting towards woman and certainly these policies do not necessarily only cover “cash transfers”. If resources are not pooled, policies determined on household basis rather than individual basis by assuming household as a single unit may be inefficient or have undesirable consequences.

Prime Ministry, General Directorate of Social Assistance and Solidarity was responsible from implementation of Social Risk Mitigation Project and Conditional Cash Transfer Programme until the end of 2007 and now is responsible from continuation of Conditional Cash Transfer after 2008. Prime Ministry, General Directorate of Woman’s Status is responsible from strengthening the status of woman in Turkey.

Project Evaluation and Monitoring Directory (General Directorate of Social Assistance and Solidarity) has agreed to arrange either a workshop or a seminar in their Institution so that we can present and discuss our findings when the project ends. Either a workshop or a seminar, in this arrangement public and private stakeholder will be invited.

Strategy Development Directory (General Directorate of Social Assistance and Solidarity) has agreed to use our project findings as input to their annual reports.
5. Methodology

Background

The World Bank proposed filling the poverty benefit gap with a regular cash transfer system (the Conditional Cash Transfer Program a particular component of the Social Risk Mitigation Project). With this Program the Bank aimed at:

a) addressing the need for mitigating the immediate impact of the recent crisis (2001) on the vulnerable groups (short-term goal),

b) providing highly targeted social assistance transfer to poor families with children, requiring positive family behavioral changes with respect to health and education (medium-term goal),

c) helping the government to initiate an assistance mechanism (long-term goal).

We have pinpointed three subjects regarding the above:

a) In Bank’s words, what actually it does is “to intervene in the social safety net provisions towards ensuring families are “proactive” in seeking their welfare”. In this respect, the Bank qualifies the CCT as a measure for both risk/poverty mitigation and risk/poverty prevention.

b) The Social Risk Mitigation Project (SRMP) and therefore the CCT which is financed by the World Bank initiated in 2001 and was in place until the end of 2007. In 2008, government has decided to continue the provision of CCT but this time it is going to be financed by government budget.

c) The cash aid was intended to be given to the woman in the families on the condition that they sent their children to school and met their basic health and nutrition needs. In other words, cash aid was given to woman with the expectation that woman has the desire, capacity and power to change the expenditure pattern in the family towards health and education related expenditures.

Therefore, our project proposes to test the argument in c) above, which is “the significance of woman in determining the expenditure pattern in the family”. By doing so we may enlighten policymakers while they shape the assistance mechanism towards the poor in 2008 onwards, mentioned in b) above.

Intra-household analysis in the fields of economics (Haddad et al. 1997), sociology, and anthropology provides ample evidence across a range of cultures that women tend to invest more in children (Benedicte and Rawlings, 2006). Acknowledging this finding, the Conditional Cash Transfer program implemented in various countries provided grants to mothers, in a much-noted departure from the traditional social assistance focus on the household head (Benedicte and Rawlings, 2006).

The analyses proposed and explained in the next section can be used to differentiate the specific impact of man and woman on health, education and various expenditures in the household by utilizing various dummy indicators. Therefore, if there is statistical evidence that man and woman have different intentions in terms of expenditure patterns of the household then some interpretation can be drawn based on the estimated coefficients regarding man’s and woman’s affect.
Empirics

The empirical analysis in this research involves cross-household estimation of a system of Working-Leser² type expenditure share equations. This model then expanded by basing largely on findings regarding functional form in Ulph (1988) and on variable specification in Hoddinott and Haddad (1995), Durrant and Satyar (2000) and Roushdy (2004). Specification of the equations are given in equation 1 and expenditure share of each commodity group is explained as a linear function of the log of commodity prices and of per capita total expenditure and of various intercept and interacting dummy variables that represent demographic, individual and societal characteristics.

\[ e x s h_{jh} = \alpha_0 + \alpha_1 \log p c e x_h + \sum_{j=1}^{4} \beta_j \log p i n_j + \alpha_2 \log h s w b_h + \alpha_3 \log w m s h t_i_h + \alpha_4 \log h s_h + \]

\[ \alpha_5 \log m f_h + + \alpha_6 \log c h h s_h + \alpha_7 \log w o h c_h + \alpha_8 \log w o p c_h + \alpha_9 \log m a h c_h + \alpha_{10} \log m a p c_h + \]

\[ \sum_{r=1}^{11} \delta_r \log h h l o_r_h + \alpha_{11} \log h h u r_h + \alpha_{12} \log h h f m t y_r_h + \alpha_{13} \log w o w r s t_h + \alpha_{14} \log w o j b p m_h + \alpha_{15} \log w o h e i n_h + \]

\[ \alpha_{16} \log w o v v a_h + \alpha_{17} \log w o m o b_h + \alpha_{18} \log w i d e v_h + \alpha_{19} \log w r h m + \alpha_{20} \log s p a g_h + \]

\[ \sum_{r=1}^{11} \varphi_r (h h l o_r_h, X m s c_r_h) + e \]

Variable definitions:
- \( j \): commodity groups
- \( h \): household
- \( r \): regions

Economic characteristics
- \( e x s h \): expenditure share
- \( p c e x \): per capita expenditure
- \( p i n \): vector of consumer price indices per commodity group
- \( h s w b \): economic well-being of the household
- \( w m s h t \): proportion of household income accruing as cash to spouses of the head

Demographic characteristics
- \( h s \): household size
- \( m f \): ratio of male to female children in the household
- \( c h h s \): ratio of children in the household
- \( w o h c \): human capital characteristics of woman
- \( w o p c \): physical capital characteristics of woman
- \( m a h c \): human capital characteristics of man
- \( m a p c \): physical capital characteristics of man

Specifics of household and society
- \( h h l o \): vector of dummy variables indicating household location
- \( h h u r \): residential area
- \( h h f m t y \): type of family

² Original form and derivation of Working-Leser type functions are introduced in the Appendix.
Individual status of the woman
wowrst: woman’s status at work
wojbpn: duration of job that woman is working in
wohein: whether woman has health insurance
wovva: value of valuables woman owns

Societal status of the woman
wmob: share of women’s expenditures on particular items
widev: income deviation of woman in the region where that household resides
wrhm: working at home or not
spag: age difference between the husband and wife

hhloXmsc: interacting dummy variables representing the difference between various household characteristics by region

e: error term

Variable explanations:

Commodity groups (j): Total expenditures are reclassified under four groups: health; education; necessities (food, clothing, accommodation, transportation); others (alcoholic drinks-cigarette-tobacco, furniture-apparel, communication, entertainment-cultural, dining-travel, various goods and services).

Households (h): Group of single people living together is excluded from the sample but families of patriarchal and nuclear type with and without children are included in the sample.

Regions (r): Twelve regions are included: Istanbul, Western Marmara, Aegean, Eastern Marmara, Western Anatolia, Mediterranean, Central Anatolia, Western Black Sea, Eastern Black Sea, North Eastern Anatolia, Central East Anatolia, South Eastern Anatolia.

Economic characteristics
Expenditure share (exsh): Percentage share of each commodity group, in total expenditure.

Per capita expenditure (pcex): This is calculated as per adult total expenditure.

Vector of consumer price indices (pin): Weighted consumer price index for each commodity group.

Economic well-being of the household (hswb): Economic well-being indicator is based on the wealth index calculated by using information on household assets to proxy the living standard of the households. First, the unweighted mean and standard deviation of each asset is calculated and then factor analysis is used to obtain a weight (factor score) for each asset reflecting the ability of the asset to differentiate between the non-poor and the poor. In the next step, standardized household asset scores are calculated and summed for all the assets and finally households are ranked according to the standardized scores, and the appropriate quintile cut off points are defined.

Proportion of household income accruing as cash to spouses of the head (wmshti): This is the share of income earned by the woman/mother, in total income of the household.

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Demographic characteristics

Household size (hs): This is calculated as adult equivalent.

Male to female ratio (mf): Number of male children in the household divided by number of female children.

Children rate (chhs): Number of total children in the household divided by household size.

Human capital characteristics of woman/mother (wohc)-binary variable: if woman has at least secondary level education 1 otherwise 0

Physical capital characteristics of woman/mother (wopc)-binary variable: if woman is of working-age 1 otherwise 0

Human capital characteristics of man/father (mahc)-binary variable: if man has at least secondary level education 1 otherwise 0

Physical capital characteristics of man/father (mapc)-binary variable: if man is of working-age 1 otherwise 0

Specifics of household and society

Household location (hhlo)-binary variable: Binary variables are created to reflect the fixed impact of each region (described above) in Turkey. The indicator takes value 1 if the household resides in that particular region otherwise it becomes equal to 0.

Household residence area (hhur): If the household resides in urban areas 1 otherwise 0

Household family type (hhfmty): If woman/mother is living in a patriarchal type family 1 otherwise 0

Individual status of the woman

Woman’s status at work (womwrst): If the woman is an unpaid family worker 1 otherwise 0

Woman’s duration of job (wojbpm): If the job woman is working is a permanent one 1 otherwise 0

Health insurance (wohein): If woman has health insurance 1 otherwise 0

Value of valuables (wovva): Value of valuables (like jewelry) the woman owns.

Societal status of the woman

Mobility index (wmob): To proxy mobility, share of women’s expenditures on particular items (jewelry, watches, hair dresser, personal beauty and make-up materials, supplies and equipment,

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4 See Durrant and Sathar, 2000.
sewing and knitting material, women’s shoes, clothing and accessories) in household income is calculated.

**Woman’s income deviation (widev):** Income deviation is calculated as the difference between woman’s monthly income and the average woman income in the region where that household resides.

**Woman’s place of working (wrhm):** If woman works outside home 1
otherwise 0

**Spousal age difference (spag):** The age difference between the husband and wife.

*Interacting dummy variables (hhloXmsc):* These variables are specified to differentiate the impact of various household characteristics by region such as: household family type; ratio of children; ratio of male to female children; share of income accrue to woman; households’ well-being; etc.

**Estimation issues**

The total sample includes more than 25,000 households and about 107,000 household members. There are four commodity groups and hence there are four expenditure share equations to estimate. These equations can be estimated as single equations or by using systems methods. Care is going to be given during estimation particularly to cope with heteroscedasticity and endogeneity problems. Generalized least square technique can be used to cope with heteroscedasticity. Endogeneity tests for the variables per capita total expenditures and women's share in cash income of the household is going to be carried out. If there is statistical evidence of endogeneity then instrumental variables are going to be created and either two-stage least square or instrumental variable estimation techniques can be used to remove the correlation with the disturbance term and to generate consistent parameter estimates. Another problem might be caused if the share of a particular group in total expenditure is too large. This would simply mean regressing a variable on itself, leading to correlation between an explanatory variable and the disturbance. Therefore, care is going to be given to cope with these technical problems.

**How Exactly the Specific Technique will be Used to Answer the Research Questions**

Firstly, in the database gender and household based demographic, social and economic data will be used to create indicators and to reveal particularly individual and societal status of woman in different regions.

Secondly, slope and intercept dummy variables will be created to differentiate between woman and man specific characteristics. These dummy variables will be related to demographic, social and economic characteristics.

Selected variables will also be put in interaction with regional dummy variables as well, to see the region specific changing impacts.

The analyses involve finding the impacts of various explanatory variables on the variation in expenditure shares of selected commodity groups. One of these commodity groups covers health and education related expenditures. This differentiation between commodity groups will generate conclusions in two categories. In the first one, impact of each variable on health and education expenditures will be found. In the second category, the difference between the specific impact of
each variable on expenditure on health-education and on other commodity groups will be obtained. Besides, since there is gender based differentiation among the explanatory variables, the information obtained in the first and second categories will be gender-wise. Analyses will also provide information regarding the effect of commodity-group price indices and per capita total expenditures on expenditure shares. Hence, own and cross-price effects and per capita income (proxied by per capita per capita total expenditures) effect will be derived. In other words, the analyses will test the hypotheses regarding the impact of various variables; test the equality of estimated coefficients for different genders; and test joint significance of various variables, however it will not be possible to know for example what exactly would be the share of health and education related expenditures if CCT was given to men rather than woman.
6. Data Requirements and Sources

To carry out the empirical analyses the basic data requirement is household level demographic, social and economic data.

In Turkey, the largest in depth household level data is provided by Turkish Statistics Institute’s Household Budget Survey which has been conducted annually starting from 2002. Before then, two different surveys were carried out, Household Income and Household Consumption Expenditure Surveys, on irregular basis.

In this research, the data collected by Turkish Statistics Institute’s Household Budget Survey in year 2003 will be used due to its regional disaggregation and sample size which distinguish it from other years’ surveys. The questionnaire used in the survey covers the following chapters:

- Composition of households,
- Socio-economic status of the households,
- Consumption patterns of households,
- Stocks of durables and related expected expenditures,
- Consumption expenditures of households,
- Commodities consumed from households own production,
- In kind income (goods and services) attained by the households,
- Income in terms of gift, promotion and aid (goods and services) attained by the households,
- Goods and services purchased by households to be given as aid and gift,
- Expenditures other than consumption (savings, installments, debt/loan payment),
- Composition of households, employment and income,
- Information about agricultural holdings,
- Income and expenditure balances.

Mainly three variable groups are derived from this survey:

- Variables regarding socio-economic status of the household (type of the dwelling and ownership, heating system, facilities in the house, owned durables and transportation vehicles etc.),
- Consumption expenditure variables (value of consumed goods and services),
- Variables related to individuals (age, gender, education), employment (profession, occupation, position in the job) together with variables income from main economic activity and from non-main economic activities.

In the 2003 Household Budget Survey 25920 households and about 107000 individuals are covered. These households were selected to reflect outcomes in Turkey (urban and rural), in NUTS\(^6\)-level 1 (urban, rural and total) and in NUTS-level 2 disaggregation.

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\(^6\) Nomenclature of Units for Territorial Statistics in the European Union.
6. Consultation and Dissemination Strategy:

Dissemination

Our dissemination strategy involves three fronts: academia, policy makers and civil society.

Academic front. Our first dissemination policy is to present our findings in the most important academic activity for economists in Turkey which is Congress of Turkish Economic Association. The next one we can apply will be around mid-2009. About the same time we are planning to present our main findings in an international refereed conference. These conferences will be helpful to get critique from academics of the relevant areas.

Based on the critique we are planning to write a large working-paper that covers the full work. This can be published by Economic Research Centre on Mediterranean Countries, Akdeniz University. Finally, we plan to publish a summary of this work in an international refereed journal.

Policy front. We are planning to work in close contact with Prime Ministry, General Directorate of Social Assistance and Solidarity which was responsible from implementation of Social Risk Mitigation Project and Conditional Cash Transfer Programme until the end of 2007 and now is responsible from continuation of Conditional Cash Transfer after 2008. We are also planning to work in close contact with Prime Ministry, General Directorate of Woman’s Status which is responsible from strengthening the status of woman in Turkey.

Project Evaluation and Monitoring Directory (General Directorate of Social Assistance and Solidarity) has agreed to arrange either a workshop or a seminar in their Institution so that we can present and discuss our findings when the project ends. Either a workshop or a seminar, in this arrangement public and private stakeholder will be invited.

Strategy Development Directory (General Directorate of Social Assistance and Solidarity) has agreed to use our project findings as input to their annual reports.

The Directories for Development of Women’s Economic and Social Status have agreed together to share our findings with relevant “NGOs and researchers who focus on gender differences” in a workshop organized by themselves.

Civil front. Our contacts with UNDP and The World Bank’s Turkey offices and IFPRI and with The Foundation for Social Assistance and Solidarity constitute our main linkage to civil organizations.
8. Team Members

Assoc. Prof. Selim Çağatay (team leader)

Age: 41  
Sex: Male  
Education:  
2002: Doctor of Philosophy in Department of Economics, Lincoln University, Christchurch, New Zealand.  
Title of the Thesis: “A Comparative Analysis of the 1984 Economic Reforms in New Zealand”.  
1994: Master of Science in Department of Economics, Middle East Technical University (METU), Ankara, Turkey.  
Title of the Thesis: “Comparison of Agricultural Multi-Country, Multi-Commodity Trade Models”.  
1992: Bachelor of Science in Department of Economics, Middle East Technical University (METU), Ankara, Turkey.

Experience:  
In the proposed project Selim will be mainly responsible from coordinating, monitoring, guiding and evaluating team members. He will be responsible from reporting the interim and final reports and he will be leading the econometric analyses.

So far, Selim has participated in various national/international research projects at various capacities. These projects mostly brought teams from academy, public sector and industry together and information regarding relevant projects can be found in this document and the rest can be seen from his CV. Therefore, team leader of this proposed research project has enough experience regarding the working atmosphere of a project such as keeping tight deadlines, giving good guidance to juniors and significance of team effort to achieve the goals.

Selim’s most academic work including refereed journal articles, supervised M.Sc. and Ph.D. dissertations and research projects involve quantitative modeling. Either mathematical model solution or econometric estimation is included in his applied works. He has also worked with extensive databases and household data before, which can also be observed from his CV. Therefore, he has enough experience regarding the methodology involved in this research proposal and the database that is going to be used in the econometric analyses in this research.

Currently and in the past, Selim has done various academic works basing on core microeconomic theory and his particular expertise is in the consumption/consumer side of the theory. Regarding the households, particularly rural, he has estimated expenditure patterns to various commodity goods, input demand, output supply, labor demand and supply, poverty gap, food poverty, agricultural investment and measured income distribution, absolute and relative poverty etc. Modeling and simulating impact analysis of policy changes is another focus point in his academic works. Therefore, he is quite familiar with the subject matter of this proposed research project.
Perihan Özge Saygın (research fellow)

Age: 23  
Sex: Female  
Education:  
08/2007 – present  Ph.D in Economics  
*Akdeniz University, Department of Economics* – Antalya, Turkey  
02/2007 – 06/2007  Postgraduate Courses at Ph.D level  
*Hacettepe University, Department of Economics* – Ankara, Turkey  
09/2005 – 10/2006  Master’s degree in International Economics  
*Université Paris I - Panthéon-Sorbonne* – Paris, France  
09/2000 – 06/2005  Bachelor’s degree in Economics  
*Hacettepe University, Department of Economics* – Ankara, Turkey  

Experience:  
In the proposed project Perihan will be mainly responsible from reviewing the relevant national and international literature and practicing econometric analyses. She will report statistical and econometric procedures and will assist team leader in writing final report.

Perihan’s most important asset regarding the proposed research project is her Master’s degree which she has gained in *Université Paris I-Panthéon-Sorbonne*, Paris. She has taken various courses regarding development economics and has read a vast literature regarding intra-household models. Therefore, she is quite familiar with the relevant literature. She has also taken advanced quantitative economics course and used this skill in her master’s thesis.

Currently, she is working in two different research projects which focus on the labor market and agricultural structure in rural parts of Turkey. In those projects, Perihan found the opportunity to use her econometric skills to estimate models which utilize large samples. Therefore, Perihan is aware of difficulties and delicate parts regarding huge samples and she is familiar with research project atmosphere as well.

Arzu Kepoğlu (research fellow)

Age: 28  
Sex: Female  
Education:  
2004 – present  Master of Science in Agricultural Economics  
*Ankara University, Department of Agricultural Economics* – Ankara, Turkey  
Thesis: Studies on rural development and poverty, entrepreneurship and impact assessment.  
1997 – 2002  Bachelor’s degree in Sociology  
*Middle East Technical University, Department of Sociology* – Ankara, Turkey  

Experience:  
In the proposed project Arzu will be mainly responsible from creating indicators regarding woman’s individual and societal status based on demographic, social and economic data. She will report statistical procedures she is going to use and relevant literature she is going to refer related to construction of indicators.
Arzu’s most important asset regarding the proposed research project is her B.Sc. degree in Sociology and her past research project experience in which she has participated in various capacities. Some projects she has worked in before involve directly household based analyses both in rural and urban areas but as different from the other members of the proposed project team, she analyzed the issues from a sociologist point of view. Therefore, she is going to introduce a different literature to the team members.

In some other projects Arzu found the opportunity to use large databases. Therefore, she is aware of difficulties and experienced in working with large samples and familiar with relevant statistical software packages as well.

**Mehmet Zanbak (research assistant)**

Age: 26  
Sex: Male  
Education:  
2006 – present Master of Science in Economics (writing dissertation)  
*Akdeniz University, Department of Economics – Antalya, Turkey*  
Thesis: Analysis of Share Market Price Impacts of Exchange Rate Variation: Turkey as a Key Study (in Turkish)  
2001 – 2005 Bachelor of Science in Economics  
*Dokuz Eylül University, Department of Economics – İzmir, Turkey*

Experience:  
In the proposed project Mehmet will be mainly responsible from analyzing the first (raw) data and creating secondary data to prepare indicators and variables to be used in the empirical analyses. He will carry out calculations regarding basic statistical properties of the data and will assist econometric analysis. Mehmet will also be responsible from preparing descriptive statistics regarding the findings of the project.

Mehmet is in the beginning of his academic carrier, however, his performance in the Economics Department proves that he is fastidious, hard working, and he can stick to deadlines and can be a well performing member of a team. Therefore, he can easily adapt to the stressful atmosphere of the research project and can cope with tight deadlines and high work burden.

Currently, he is carrying out an econometric analysis for his M.Sc. dissertation. Therefore, he is gaining experience in statistical and econometric procedures and in data management as well.
9. Research Capacities that Team Members and their Institutions are Expected to Build and Tasks of Each Researcher

Research Capacities

With this research project we intend to take the first initiative towards gathering a working group that is concerned about poverty and that specifically focus on and gains expertise in various dimensions of poverty.

Approval of this research project and working group by the PEP and achievement of the goals stated previously in this proposal will verify the importance of “poverty issue” and the existence of this working group in the academic institution where the researchers currently work.

This working group aims at building a multi-functional capacity. The proposed research project aims to fulfill only the short-term component of this capacity by introducing the relevant theoretical background to researchers involved in the project but more importantly to the institution they work. The theoretical background rests on microeconomic theory since household behavior is in the core. However, more specifically related to the topic, the different approaches used to define poverty and to identify the poor such as absolute, relative, \( Q^2 \) (qualitative together with quantitative) and capabilities approaches; methods to measure poverty such as monetary and non-monetary approaches; methods to estimate poverty and place of intra-household models/approach among the models that aims at explaining poverty are all parts of the theoretical background. The macro and micro oriented policies to alleviate poverty is in the “policy” dimension of the subject and in the consideration of the working group in the medium term as well.

In the short-term we aim to motivate the junior member of our team (Mr. Zanbak) to study the above literature and to write his Ph.D. dissertation in a related area. In the medium-term, our objective is to motivate and pull more students into this research area. The other researcher Ms. Saygın is already involved in the relevant research projects and has already given a Ph.D. proposal regarding intra-household allocation. Ms. Kepoğlu, who has shown interest in development and poverty related topics so far, has almost finished her M.Sc. degree. With this project we are aiming at introducing her to the literature regarding intra-household allocation and we believe, as a sociologist she will find the motivation to start her Ph.D. degree in a relevant area.

Another short-term impact of this proposed project will be the establishment of statistical and econometric software packages that are going to be used in the empirical analyses in this project. Obviously, once these packages (SPSS, STATA, LIMDEP) are installed, these will be both learned and used by the researchers in the project and by the other researchers in the institution. Apparently, this research project will motivate the researchers to strengthen their statistics and econometric skills besides they will get experience in working with micro-level large data sets.

The extensive database that is going to be used in the research project is itself a precious asset and will be available for other researchers in the institution as well.

As explained above, while the short-term impact of built capacity will be personal, in the medium to long-term impact of built capacity will be institutional.

Currently, in the University where Mr. Cagatay, Ms. Saygın and Mr. Zanbak works there is a research centre, Economic Research Centre on Mediterranean Countries (ERCMC), which is specialized in agriculture and food based research since the last ten years. Under ERCMC, very
recently, Mr. Cagatay has initiated the working group Policy Analysis and Modeling Group (PAMG\textsuperscript{7}) composed of 10 researchers from various institutions in Turkey and other countries. PAMG has an extensive modeling capacity (various partial and general equilibrium frameworks) that focuses on agriculture related policy analyses\textsuperscript{8}. In the medium to long-term, complementary to PAMG, this research project aims to establish a capacity, a wider working group, which will constitute Rural Development Studies Group. Hence, Rural Development Studies Group will be composed of PAMG and Poverty Studies components which aim to carry out applied policy analysis to generate alternative policy advice to policy makers and public institutions in areas related to poverty. This research project is expected to be the first initiative to develop Poverty Studies group in terms of attracting researchers and compensating for the initial hardware expenses.

Tasks

Assoc. Prof. Selim Çağatay (team leader)
In the proposed project Selim will be mainly responsible from coordinating, monitoring, guiding and evaluating team members. He will be responsible from reporting the interim and final reports and he will be leading the econometric analyses.

Perihan Özge Saygın (research fellow)
In the proposed project Perihan will be mainly responsible from reviewing the relevant national and international literature and practicing econometric analyses. She will report statistical and econometric procedures and will assist team leader in writing final report.

Arzu Kepoğlu (research fellow)
In the proposed project Arzu will be mainly responsible from creating indicators regarding woman’s individual and societal status based on demographic, social and economic data. She will report statistical procedures she is going to use and relevant literature she is going to refer related to construction of indicators.

Mehmet Zanbak (research assistant)
In the proposed project Mehmet will be mainly responsible from analyzing the first (raw) data and creating secondary data to prepare indicators and variables to be used in the empirical analyses. He will carry out calculations regarding basic statistical properties of the data and will assist econometric analysis. Mehmet will also be responsible from preparing descriptive statistics regarding the findings of the project.

\textsuperscript{7} The web page will be in publication fully in two weeks time.
\textsuperscript{8} Domestic agricultural and border policy modeling; agriculture-environment linkages; agriculture-bioenergy; genetic modification; agriculture-greenhouse gas emissions etc. Previous studies that were conducted by PAMG will be available on the web.
10. Ethical, Social, Gender or Environmental Issues or Risks

There are no ethical, social, gender or environmental issues or risks involved in the project or that may arise during the execution of the project.
11. Past, Current or Pending Projects in Related Areas Involving Team Members

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Title of Project &amp; Duration</th>
<th>Position of Researcher</th>
<th>Funding Institution</th>
<th>Team Members</th>
</tr>
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<tbody>
<tr>
<td>Mr. Selim Çağatay</td>
<td>Testing Separability Principle in Turkish Agricultural Labor Market Aug. 2007-Apr. 2008</td>
<td>Coordinator</td>
<td>TUBITAK</td>
<td>Ms. Perihan Özge Saygıń</td>
</tr>
<tr>
<td>Mr. Selim Çağatay</td>
<td>Assessing the Feasibility and Evaluating the Economic Impacts of Deficiency Payment System as an Agricultural Support Instrument in Turkey Dec. 2005-Jul. 2006</td>
<td>Consultant-Policy Analysis</td>
<td>MARA(^10)  UNDP(^11)</td>
<td>Mr. Ahmet Şahinöz Mr. Özgür Teoman</td>
</tr>
<tr>
<td>Mr. Selim Çağatay</td>
<td>Agricultural Reform Implementation Project-Analysis of Quantitative Household Income and Consumption Expenditure Survey Jun. 2003-May 2006</td>
<td>Consultant-Rural Income and Consumption Pattern Analysis</td>
<td>UT(^12)  WB(^13)</td>
<td>Mr. Erol Çakmak Ms. Çiğdem Baykal Mr. Bahattin Akşit Mr. Akin Atauz Ms. Selma Gerçek</td>
</tr>
<tr>
<td>Mr. Selim Çağatay</td>
<td>Poverty: Concept, Measurement Methodologies and Factors that Determine Rural Poverty in Turkey (in Turkish) 2005-2006</td>
<td>Supervisor</td>
<td>Hacettepe Uni.</td>
<td></td>
</tr>
<tr>
<td>Mr. Selim Çağatay</td>
<td>(Interaction between Financial</td>
<td>Supervisor</td>
<td>Akdeniz Uni.</td>
<td></td>
</tr>
</tbody>
</table>

\(^9\) The Scientific and Technological Research Council in Turkey.
\(^10\) Turkish Ministry of Agriculture and Rural Affairs.
\(^11\) United Nations Development Program.
\(^12\) Undersecretary of the Treasury.
\(^13\) World Bank.
<table>
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<th>Team Members</th>
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<tr>
<td>Ms. Arzu Kepoğlu</td>
<td>Rapid Appraisal Study of Household Income and Expenditure in Turkey 2001</td>
<td>Research Assistant</td>
<td>WB</td>
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</tr>
<tr>
<td>Ms. Arzu Kepoğlu</td>
<td>Social Assessment for Agricultural Reform Implementation Project</td>
<td>Research Assistant</td>
<td>WB</td>
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</table>

¹⁴ Turkish Development Foundation.
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<th></th>
<th>Ms. Arzu Kepoğlu</th>
<th>Yusufeli-Artvin Resettlement Project 2000</th>
<th>Research Assistant</th>
<th>SWW\textsuperscript{15}</th>
</tr>
</thead>
</table>

\textsuperscript{15} State Water Works.
References


Appendix

Derivation of Working-Leser Type Expenditure Share Function¹⁶

Demand for \( i \) \((q_i)\) is specified as a function of expenditures and price in A1. Since the demand function should satisfy the budget constraint in A2, \( f_i \) should be constrained as in A3. A3 is also referred to as the “adding-up restriction”.

\[
q_i = f_i(x, p) \quad \text{A1}
\]
\[
x = \sum_k p_k q_k \quad \text{A2}
\]
\[
\sum_k p_k f_k(x, p) = x \quad \text{A3}
\]

“Adding-up restriction” implies that for \( i = 1, \ldots, n \) A4 and A5 should hold, which is also respectively referred to as Engel and Cournot aggregation.

\[
\sum_k p_k \frac{\partial f_k}{\partial x} = 1 \quad \text{A4}
\]
\[
\sum_k p_k \frac{\partial f_k}{\partial p_i} + q_i = 0 \quad \text{A5}
\]

The homogeneity restriction implies that A6 should hold, hence a proportionate change in \( p \) and \( x \) leaves consumption of \( i \) unchanged.

\[
\sum_k p_k \frac{\partial f_i}{\partial p_k} + x \frac{\partial f_i}{\partial x} = 0 \quad \text{A6}
\]

If logarithmic derivatives of A1 are taken, as in A7 and A8, total elasticity measures with respect to expenditures and prices can be found. When \( i = j \) then A8 becomes own price elasticity and if \( i \neq j \) then it is cross price elasticity.

\[
e_i = \frac{\partial \log f_i(x, p)}{\partial \log x} \quad \text{A7}
\]
\[
e_{ij} = \frac{\partial \log f_i(x, p)}{\partial \log p_j} \quad \text{A8}
\]

If expenditure share of each good is defines as in A9, then A4 and A5 can also be written as in A10 and A11, which implies A12.

\[
w_i = \frac{p_i q_i}{x} \quad \text{A9}
\]
\[
\sum_k w_k e_k = 1 \quad \text{A10}
\]

¹⁶ Adopted from Deaton and Muellbauer (1980).
\[ \sum_k w_k e_{ki} + w_i = 0 \]  
\[ \sum_k e_{ik} + e_i = 0 \]

Engel curve is referred to as in A13, when \( p \) is absorbed into functional form. A fully consistent form with “adding-up restriction” from A13 can be obtained as in A14, such that \( \sum \alpha_i = 1 \) and \( \sum \beta_i = 0 \).

\[ q_i = f^*_i(x) \]  
\[ w_i = \alpha_i + \beta_i \log x \]

When this model is used for time-series analyses it should be extended to include price effects, A15.

\[ w_i = \alpha_i + \beta_i \log x + \sum_j \delta_{ij} p_j \]