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Editor's Introduction

With this issue, as *Ekonomi-tek* marks the start of its third volume, we present papers on such diverse topics as the global economy, the evolution of capitalism, Turkish productivity and demographics, and Turkish employees' work and life satisfaction.

Since the recent "Great Recession," the prolonged economic malaise it brought has not gone away from certain areas of the world. Nor is the global economy likely to pull itself out of the low-growth swamp anytime soon, thanks to destabilizing developments like plunging oil prices and unpredictable monetary policies. Thus, the outlook is for greater fragility in the world economy. In the first paper of this issue, writing for the Turkish Economic Association, I analyze the contours of this low-growth environment against the context of the presentations and discussions at the International Conference on Economics of the Turkish Economic Association (ICE-TEA 2014). Religiosity, the savings of the poor, wealth distribution, terrorism, and economics education are among the subjects presented at the conference and I believe they will all play a part in the future economic environment.

Widespread distress on the part of decisionmakers over the economic quandary the world finds itself in has led to debates on the very survival of capitalism. Our second paper, presented at ICE-TEA 2014 by David Colander, of Middlebury College, focuses on this subject. He argues that, as in the past, capitalism is characterized by its pragmatism, so its future will likewise be pragmatic—like all successful systems. However, he believes that US economic policymakers, in particular, have been on the wrong track with their obsession with boosting GDP. Instead, in his view, they should be figuring out how to get the market to bring about a higher level of social welfare, as defined by the citizens themselves. Colander sees this as a necessary evolutionary step for economic managers, just as inevitable as earlier metamorphoses of capitalism. A case in point is the history of how the individual capitalist in Adam Smith's day became obsolete and gave way to the system where the ownership and the control of a business were separated. Currently, Colander is part of a mission to create a new corporate concept: for-benefit corporations, as opposed to for-profit enterprises and not-for-profit institutions. These for-benefit entities would have a dual purpose: to produce income for the owners while also fulfilling the social goals of those same owners.

In the third paper, Murat Üngör and Koray Kalafatcılar, both of the Central Bank of Turkey, examine the effects of productivity, employment, and demographics on per capita income growth in Turkey during 2004-12, in comparison with other OECD countries. They decompose GDP per capita growth into labor productivity, the ratio of employment to the working-age population, and the ratio of the working-age population to the total population. For the period in question, they find the following contributions to the positive change in per capita income: an increase in output per worker, 45.5%; a rise in the employment-to-working-age population, 39.0%, and a jump in the ratio of the working-age population to the total population, 15.5%. For the 2004-09 period, output per worker was the most important of the three components. On the other hand, the employment-to-working-age population ratio accounted for around two-thirds of the growth in per capita output during 2009-12. Thus, there was productivity-based growth before the global crisis and employment-based growth in the post-crisis period. Other findings for Turkey include: (i) capital deepening was the prime mover behind Total Factor Productivity growth over the 2004-10 period; (ii) female participation in the labor force went up, yet this participation was still the lowest in the OECD; (iii) female employment was found to be concentrated in the service sector.

Cem Başlevent, of Bilgi University, is the author of the fourth paper in this issue. He first presents the patterns of over- and under-employment in Turkey, after which he gives empirical evidence of the impact of mismatched hours on the life-satisfaction levels of employees. We also learn about the life-satisfaction levels caused by over- and under-employment and how male and female workers differ in their reactions to those conditions. The author draws on European Social Survey (ESS) data to determine whether work-to-family or family-to-work conflicts influence well-being. It turns out that gender looms large in the hours-mismatch status. Başlevent emphasizes that this empirical work focuses on a predominantly Muslim country where the female labor-participation rate is quite low, and traditional views on the division of labor within the household are still highly common.

With the hope of meeting you again in our future issues…

Ercan Uygur
Editor
Ekonomi-tek

Editörün Sunuşu

Bu sayı, *Ekonomi-tek*'in üçüncü cildini başlatmış olmaktadır ve küresel ekonomi, kapitalizmin evrimi, Türkiye'de verimlilik ile nüfus yapısı ve çalışanların çalışma ve yaşam hoşnutluğu gibi farklı konularda makaleler içermektedir.

Yakın zamandaki "Büyük Durgunluk"tan bu yana ortaya çıkan ekonomik rahatsızlıklar ve yavaşlama dünyanın belli bölgelerinde devam ediyor. Küresel ekonomi; petrol fiyatlarındaki büyük çöküntü, kestirilemeyen para politikaları gibi nedenlerle bu düşük büyüme bataklığından kısa sürede çıkacakmış izlenimi vermiyor. Haliyle, yakın gelecekte daha fazla kırılganlıklar olabilecek görüntüsü var. Bu sayının ilk makalesinde, Türkiye Ekonomi Kurumunun Uluslararası Ekonomi Konferansında (UEK-TEK 2014) yapılan sunumları ve tartışmaları da dikkate alarak bu düşük büyüme iklimini, Kurumdan birisi olarak, ana hatlarıyla incelemeye çalışıyorum. Dindarlık, fakirlerin tasarrufları, servet dağılımı, terörizm ve iktisat eğitimi konfreransta sunulan konular arasındadır ve inanıyorum ki, gelecekteki ekonomik iklim üzerinde ihmal edilemez etkileri olacaktır.

Dünyadaki yaygın kararsızlıklar ve belirsizlikler konusunda karar vericilerin duydukları sıkıntılar, kapitalizmin sürdürülebilirliği konusunda tartışmalara neden oluyor. UEK-TEK 2014'te Middlebury College'dan David Colander tarafından sunulan ikinci makalemiz bu konu üzerine odaklanıyor. Yazara göre, tüm başarılı sistemlere benzer biçimde, geçmişte olduğu ve gelecekte olacağı gibi, kapitalizmin özelliği pragmatizmdir. Ancak, özellikle ABD'deki politikacılar GSYİH'yı yükseltme konusundaki saplantılarıyla yanlış bir yol izlemişlerdir. Colander'a göre politikacılar, bunun yerine, vatandaşlar tarafından tanımlanmış sosyal refahı piyasanın nasıl daha da yükselteceğini düşünmelidirler. Colander bunu, kapitalizmin daha önceki kaçınılmaz değişimleri gibi, yöneticiler için gerekli bir evrimsel adım olarak görmektedir. Burada tarihten bir örnek, Adam Smith dönemindeki kapitalist bireyin modasının geçmesi ve işletmelerde sahiplik ve kontrolün ayrıştırılmasıdır. Şimdilerde Colander yeni bir şirket kavramı yaratmak isteyen misyonun parçasıdır: kar-için-işletme yerine (sosyal) fayda- için-işletme önermektedir. Fayda-için-işletmelerin ikili amacı olacaktır: sahipler için gelir yaratmak, ama aynı sahipler için aynı zamanda sosyal hedeflere ulaşmalarını da sağlamak.

Üçüncü makalede, her ikisi de T.C. Merkez Bankasından olan Murat Üngör ve Koray Kalafatcılar, diğer OECD üyesi ülkelerle karşılaştırarak,

Türkiye'de 2004-12 döneminde kişi başına gelir üzerinde verimlilik, istihdam ve nüfusun etkilerini incelemektedir. GSYİH büyümesini işgücü üretkenliği, istihdam/çalışma yaşındaki nüfus oranı ve çalışma yaşındaki nüfus/toplam nüfus oranları olarak ayrıştırmaktadırlar. Ele alınan dönemde, kişi başına gelir artışına aşağıdaki unsurların şu katkıları yaptığını bulmuşlardır: işçi başına üretim artışı %45.5; istihdam/çalışma yaşındaki nüfus oranındaki yükselme %39; ve çalışma yaşındaki nüfus/toplam nüfus oranı %15.5. 2004-2009 döneminde işçi başına üretim, üç unsur içinde en önemlisi olmuştur. Diğer yandan, 2009-2012 döneminde, istihdam/çalışma yaşındaki nüfus oranında artış, kişi başına üretim büyümesine üçte iki oranında katkı yapmıştır. Öyleyse, bunalımdan önce temeli verimlilik artışı olan büyüme, bunalımdan sonra ise temeli istihdam artışı olan büyüme vardır. Türkiye ile ilgili diğer bulgular arasında şunlar belirtiliyor: (i) 2004-2010 döneminde Toplam Faktör Verimliliği büyümesinin ardındaki asıl etken sermaye derinleşmesidir; (ii) işgücüne kadın katılımı artmıştır, ancak bu katılım OECD içinde hala en düşük düzeydedir; (iii) kadın istihdamı hizmet sektöründe yoğunlaşmıştır.

Bilgi Üniversitesi'nden Cem Başlevent bu sayıdaki dördüncü makalenin yazarıdır. Makalede yazar önce Türkiye'deki fazla veya eksik çalışmanın özelliklerini sunmakta, sonra da çalışma saati uyumsuzluğunun yaşam hoşnutluğunu etkilemesi konusunda istatistiksel bulgular vermektedir. Fazla veya eksik çalışmanın yaşam hoşnutluğu düzeylerini nasıl etkilediğini ve bu etkilemede erkek ve kadın işçilerin nasıl farklı tepkiler verdiğini de burada öğreniyoruz. Yazar, Avrupa Sosyal Anketi (European Social Survey: ESS) verilerine dayanarak, çalışanların refahını çalışmadan-aileye bir çekişmenin mi, yoksa aileden-çalışmaya bir çekişmenin mi etkili olduğunu belirlemeye çalışmıştır. Öyle anlaşılıyor ki, çalışma saati uyumsuzluğunda cinsiyetin önemi daha fazladır. Başlevent, ampirik çalışmasını, işgücüne katılımın kadınlarda oldukça düşük ve ailedeki iş bölümünde geleneksel görüşlerin hala yaygın olduğu büyük çoğunluğu Müslüman olan bir ülkede yaptığını da vurgulamaktadır.

Gelecek sayılarımızda sizlerle yine buluşma umuduyla …

Ercan Uygur
Editör
Ekonomi-tek

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Some Observations on the Global Economy and ICE-TEA 2014

Ercan Uygur[*]

Abstract

The aim of this essay is to share a few of my observations on the global economy, especially as they relate to several of the presentations and discussions at the recent Fourth International Conference on Economics of the Turkish Economic Association (ICE-TEA 2014). In this context, my main concern is with the world economy's stability and prospects for low or no growth in the years ahead. Side issues here encompass income and wealth distribution and the savings of the poor. Among the interesting papers heard at this conference was one that explained the relationship between income and employment on the one hand and religiosity on the other. Another examined the relationship between income/growth and education on one side and terrorism on the other. Yet another one dealt with the evolution and survival of capitalism. My brief reviews of these and other invited papers appear herein. The essay also provides information on the topics of the sessions and the participants in this conference.

JEL codes: D3, J1, K4, O1, O5

Keywords: Global stability and growth, religiosity, poverty, terrorism, state of economics

[*] President, Turkish Economic Association. ercan.uygur@gmail.com

1. Introduction

The Fourth International Conference on Economics of the Turkish Economic Association (ICE-TEA 2014) was held on October 18-20, 2014 in Antalya, Turkey. Below, I briefly state several of my observations on global economic developments and refer to related discussions at the conference. For the most part, this essay is a reiteration of the points outlined in my speech at the conference's opening session.

Like the earlier ones[1], this conference was supported by the International Economic Association (IEA). We are thankful to have the IEA's support and for its continuing partnership with us. Although the President of the IEA was unable to attend due to health problems in his family, both the former and the present Secretary Generals—Joan Esteban and Omar Licandro—attended the conference as invited speakers, and we were delighted to have them among us.

ICE-TEA's theme this time was **"Global Stability and Growth and the State of Economics."** Implicit in this title was our perception that the global crisis of 2008 is still not behind us; in fact, it appears to be lingering on in certain corners of the world economy, bringing with it omens of instability and fragility ahead.

In our previous international conferences, stability, volatility, growth, and recession tended to be the keywords cropping up in the papers and abstracts submitted. The same was observed in this conference. This was to be expected, given that conference themes have often centered on contemporary problems of the global economy.

Even further back in time, when the TEA came into existence, it saw its mission as researching solutions to the devastating effects being experienced by Turkey of the Great Depression that started in 1929. With that history as a backdrop, it seemed all the more fitting for us to debate the current risks to global stability and growth and suggest solutions to the fault lines running through the profession of economics nowadays.

The aim of this essay is to share a few of my observations on the global economy, especially as they relate to several of the presentations and discus-

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[1] The first ICE-TEA was organized in 2006 in Ankara. Later, in 2008, we organized the IEA's 15th World Congress in Istanbul. The second ICE-TEA was held in 2010 in Girne, Northern Cyprus, and the third in 2012 in Çeşme-İzmir. Titles, programs, and other details of the earlier conferences can be found at the conference website: http://teacongress.org/2014-Congress-Past-Conferences-ipages-en103.cgi

sions at the recent Fourth International Conference on Economics of the Turkish Economic Association (ICE-TEA 2014). In this context, my main concern is with the world economy's stability and prospects for low or no growth in the years ahead. Side issues here encompass income and wealth distribution and the savings of the poor. In Section 2 below, I set forth my view of the outlook for the global economy. Section 3 consists of a review of an invited paper to the conference on the relationship between income and employment on the one hand and religiosity on the other. Another invited paper, which examines the relationship between income/growth and education and terrorism, is covered in Section 4. In Section 5, the savings of the poor and Thomas Piketty's arguments on wealth distribution are briefly evaluated. Section 6 provides notes on other invited papers of the conference. Section 7 concludes the essay with information on the sessions and participants.

2. Concerns about Global Stability and Growth

For some time now, we have been fretting about the prospect of a prolonged period of no or low growth in such areas as the European Union (EU) and Japan. Because this has been a non-employment-generating period, we have not found acceptable the scenario put forward by, for instance, the IMF,[2] which has foreseen strong growth in the US coexisting with huge swathes of the industrialized world mired in a no-growth muddle. We have known from the recent experience of the global crisis that there was no de-coupling whatsoever in the global economy. There is no reason why there should be one at present or in the near future.

This extended no-growth stretch in the EU is also showing deflationary tendencies that have, in turn, stoked social and political tensions in the region. Arguably, a massive shift is underway towards nationalism, radicalism, and religiosity, especially in those countries with significant ethnic and religious minorities.

Since the alarming plunge in petroleum prices, Russia and other oil-producing countries have been expected to join the list of non-growers for the foreseeable future. These countries face adjustment costs of not only lost incomes and jobs but also new fragilities arising from currency depreciation and external imbalances. It remains to be seen whether such hard times prove contagious to other developing markets. More political and social tears in the fabric of society may also be in the cards, on the back of the rising nationalism, radicalism, and religiosity spreading throughout Europe.

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[2] See, for example, IMF (July 2014).

3. Stability, Growth, and Religiosity

At ICE-TEA 2014, Joan Esteban, along with his two co-authors, Levy and Mayoral, presented a provocative paper on the role played by religiosity and individual liberties in making political choices and in affecting income and employment. Esteban, Levy and Mayoral (2014). With standard assumptions for individual preferences, their model indicates that labor supply and income are lower for religious individuals in the presence of liberties.

This paper also contains an empirical part that draws on data from European Social Surveys (ESS) that were conducted in 34 countries (in the even-numbered years) during 2002-12 on individual attitudes and attributes. The sample mostly comprised EU member states, but Israel, Russia, Switzerland, Turkey, and Ukraine were also included. Among the 34, Turkey is the only country that is predominantly Muslim. After econometric estimations, the authors find that: (i) work effort is negatively related to religiosity, becoming more so as personal liberties head upward, and, likewise, (ii) income is negatively related to religiosity, and this effect, too, is amplified by the degree of liberty.

I should note that the issue of the effect of income and employment on religiosity and individual liberties—in other words, the simultaneous relationships among the variables mentioned—are not taken up in the paper. Note also that religiosity is expressed as an index derived from the principal components of three variables obtained from the ESS. The three variables are: (i) monthly frequency of praying, expressed as the number of days of praying in one month; (ii) self-reported religiosity; and (iii) religious attendance, as measured by the monthly frequency of attendance at religious services.

What implications can be derived from the findings of Esteban, Levy, and Mayoral for developing countries in general and for Turkey in particular? Can we infer, for instance, that secularism contributes positively to long-term growth and employment? Does less religiosity lead to higher labor-force participation, higher employment, and higher incomes? The paper hints at the answers to these questions being "yes." However, the reader is cautioned with a statement in the empirical part that the estimation results should be interpreted as correlations, not as causalities.

4. Stability, Growth, and Terrorism

Another stimulating invited paper, presented by Walter Enders for the team of Enders, Hoover, and Sandler (2014), addressed the changing nonlinear relationship between income and terrorism. By making use of data for the 1970-2010 period from "International Terrorism: Attributes of Terrorist

Events" (ITERATE) and the "Global Terrorism Database" (GTD) records, the authors looked into the relationship between real per capita GDP and terrorism. We learned that domestic and transnational terrorist attacks are more concentrated in middle-income countries and that concentration shifted to lower-income countries in tandem with the mounting influence of Islamic fundamentalist and nationalist/separatist terrorists in the early 1990s.

Apparently, the composition of terrorist groups changed over time; in the 1970-92 period, left-wing groups were in the ascendant, whereas in the 1994-2010 period the Islamo-terrorists held sway. The number of terrorist incidents soared in the late 1990s and especially in the 2000s. One noteworthy finding was that once a certain threshold per capita GDP has been reached, terrorists and their supporters must sacrifice much in the way of opportunity cost. As income improves, potential grievances weaken and government expenditures can serve more varied interests.

Equally enlightening was the discovery that education levels of terrorists are positively correlated with per capita GDP; also, education often bolsters terrorist attacks at an intermediate-income level by encouraging operatives with sufficient human capital to join terror organizations. But these positive correlations are only observed up to a certain level of both GDP and education. After a certain level of per capita GDP, opportunity-cost considerations will curb these skilled adventure seekers' enthusiasm.

What lessons does this paper hold for developing countries—and for Turkey? First, the risk of terrorism might be higher for developing countries that cannot follow a sustainable growth path and fall into a middle-income trap. Similarly, if the overall level of education of the population cannot be raised steadily and instead gets "stuck," then again the risk of terrorism afflicting that society is higher.

5. Savings of the Poor, Wealth Distribution, and the Future of Capitalism

Along with global instabilities and slow growth, a main preoccupation of ours has been the persistent negative savings of the poor and the resultant shrinkage of their wealth. The data in the table below show the savings rates, defined as a proportion of disposable income, of the households as a total in the first column, and of the income groups in Turkey and Australia in quintiles in the other columns. Note that the poor have sizable dissavings, with the lowest income group having negative savings rates of no less than 25% in both countries. Understandably, the high income groups have sturdy positive savings rates, making the total household-savings figure positive.

Table 1. Household Savings Rates in Turkey and Australia, Savings as a Proportion of Disposable Income, %

TURKEY	TOTAL	1. 20%	2. 20%	3. 20%	4. 20%	5. 20%
2010	7.3	-30.3	-14.8	-3.6	3.7	24.2
2011	7,5	-31.2	-14.4	-3.3	4.9	23.7
2012	7.3	-24.1	-11.9	-5.1	6.2	21.7
AUSTRALIA						
2009-10	17.7	-25.8	-0.3	9.7	18.0	35.0

Source: Turkey: Household Budget Surveys, Turkish Statistics Institute.
Australia: Australian Bureau of Statistics

I want to emphasize here that it has been the severe dissaving of the poor coupled with the high positive savings rates of the rich that has presented us with the situation we now have in many parts of the world: a gross distortion of wealth distribution. This is another way of expressing the findings of Thomas Piketty; the data are supportive of his results. Piketty argues that, particularly when the economic growth rate (g) is low, wealth tends to accumulate in the hands of the wealthy owners of capital rather than the meagerly earning hands of the laboring class due to the rate of return on capital (r) exceeding growth (g). Thus, with r > g, there is greater wealth inequality over time. (Piketty, 2014, Parts I and II).

Piketty goes on to say that the global economy, particularly Western economies like France, the UK, and the US, is becoming one of "patrimonial capitalism." Under such a system, the economy is more and more dominated by inherited wealth, causing the global economy to grow at lower rates, despite regular technological advances, which Piketty dismisses as the mere "caprices of technology." Therefore, capitalism needs root-and-branch reform, to be carried out by galvanized governments seeking to set matters right by, as just one example, introducing taxes on wealth. Failure to act decisively will threaten the very existence of the democratic system.[3]

For his part, David Colander weighed in at ICE-TEA 2014 on the overarching issue of capitalism and its survivability. His paper appears in this issue of *Ekonomi-tek*. The basic thrust of it is that capitalism has always been characterized by pragmatism on the part of its participants. A case in point is

[3] In this context, my proposition for Turkey is to promote savings in poor households through tax-preferred savings accounts, largely education-related. Reports by the OECD and others indicate that participation in such accounts, especially by low- and middle-income households, tends to be substantial.Thus, not only are the savings of the poor encouraged , but education is also improved at the same time. Such policies also help to foster more equitable and inclusive growth (see Uygur, 2011).

the history of how early entrepreneurial capitalism gave way to an "adult" system of corporate managerial capitalism. This pragmatic trait has allowed it to evolve—and survive and even flourish—in order to adapt to whatever regulatory climate it happened to be operating under. Thus, capitalism has a long and healthy future ahead of it as it evolves into other necessary forms.

6. Other Conference Sessions and Issues

Other invited papers at the conference that sparked commentary were those on the issues of wealth and income distribution, economic crises, and global stability. Below, I touch on a few of those that were available to me or that I could listen to.

Stephen Turnovsky, by way of a neoclassical model of an open economy with two goods, one locally produced and the other imported, spoke about the impact of tariff reductions on wealth and income inequality in a growing economy in which agents accumulate both physical capital and international bonds. His paper also contains numerical simulations (Rojas-Vallejos and Turnovsky, 2014).

Graciela Kaminsky, in her presentation, took us through crises and sovereign defaults in Latin America from 1820 to 1931. She noted that systemic crises are a different breed altogether, with the international drying up of liquidity always found at their core. Kaminsky urged that European leaders draw the cautionary lessons from Latin American economic history as they try to sort out their ongoing crisis (Kaminsky, 2014).

Omar Licandro's paper centered on a neoclassical "innovation-driven growth model", which he used to analyze the effects of trade liberalization. In an oligopolistic environment, his model implies that trade liberalization leads to lower markup levels and dispersion, tougher selection of companies, and more innovation. The model is calibrated with US aggregate and corporate-level data, and the results agree with the implications of the model (Impullitti and Licandro, 2014).

Distinguished panels were also on hand at our conference. At the opening session, Minister of Finance Mehmet Şimşek and Central Bank Governor Erdem Başçı held forth on both global and Turkish economic issues and policies. Central Bank Deputy Governor Turalay Kenç organized a fascinating discussion on Global Financial Instability and Central Bank Policies. Treasury Deputy Undersecretary Cavit Dağdaş was responsible for the panel on The G20 Agenda for Growth: Latest Approaches for Long-Term Investment.

Yılmaz Akyüz of the South Center, as part of the joint UNCTAD-South Center panel and its organizer, received attention for his remarks on Key Policy Issues for Developing Countries. He said that emerging economies, especially those that are heavily dependent on foreign capital, have become more vulnerable to spillovers from global financial cycles. He warned of the dangers awaiting such countries that believe they have placed strong enough buffers around their economies to insulate them from external shocks. In fact, reactive steps pursued in the past in response to recurrent financial crises, such as more flexible exchange-rate regimes, big build-ups in international reserves, and shifting currency risks to foreign investors and lenders, do not add up to a magic bullet providing immunity from the international whirlwind. The next (and overwhelming) one may be triggered, for instance, by the normalization of monetary policy in the US. Crisis intervention in such cases would need to diverge from past practices. Unfortunately, the multilateral system is still lacking adequate mechanisms for orderly and equitable resolution of massive external shocks.

Another member of the same panel, Lim Mah Hui, informed us that the impressive economic growth experienced in East Asia had also brought with it worsening inequality, both in personal income and functional income distribution. Focusing on the export-led growth models of five East Asian economies, namely China, Korea, Malaysia, Taiwan, and Thailand, he explained how export-led growth in the past had been enough to counteract weak domestic demand. However, with export markets faltering amid the slack in the global economy, growth is now constrained. Some of these countries have tried resorting to energizing their economies by promoting the taking on of personal debt, with an eye toward reviving up retail sales. This is not going to work, however, not with the region's ailments of falling wage shares and worsening inequality. To succeed on that front, governments in the region will first have to restructure their distributive regimes.

Also on the panel was Yuefen Li, whose specialty was Timely and Fair Sovereign-Debt Restructurings. In the wake of seemingly successful debt restructurings over the past decade, many supranational institutions and distinguished academics had come around to the complacent view that the existing *ad hoc* system for sovereign rescues would continue to work. Ironically, during the same period, lawsuits brought by so-called vulture funds against highly indebted countries multiplied, with the upshot being that many national deadbeats were forced to pay back their commercial creditors in full. Indeed, recent US Supreme Court rulings—in favor of hedge funds that had sued Argentina for payment of its defaulted bonds from the year 2001—carry huge

global and systemic implications, representing as they do a setback for the concept of sovereign-debt restructuring.

Our unhappiness with the less than ideal state of economics in general nowadays was implicit in the title we chose for ICE-TEA 2014. This discontent also extends to the deficiencies in economics education, misguided approaches in governmental policies, and the neglect of environmental issues. Accordingly, two panels were initiated by the Turkish Economic Association: one on Economics Education, headed by myself, and the other on Climate Change, the Environment, and Development, organized by Erinç Yeldan.

On economics education, Geoffrey Hodgson addressed the widespread belief that the latest world financial crisis would end up reviving the discipline of economics by exposing the limitations of current economic theory and policy and thus discrediting them. However, he saw less cause for hope that economics and economics education would be redirected into more constructive and relevant channels. This was the fault of major institutional and cultural barriers to the reform of the profession. Among those he mentioned were obsolete disciplinary boundaries, deep specialization at the cost of synthetic vision, and a cult of metrication and formalization.

The same panel featured Mushtaq Khan, who talked on Institutional Economics and the Challenge of Development. He criticized conventional institutional theories for not correctly identifying the types of governance that have actually driven economic dynamism in developing countries like those in East Asia; nor were these theories of much use in determining the real sources of today's governance problems in developing countries. Conventional wisdom defines "good governance" as the enforcement of stable property rights, the removal of corruption and rent seeking, and the operation of accountable and democratic rule. Of course, these are desirable objectives in and of themselves, but they are not immediately achievable in most of the developing world. The challenge of teaching institutional economics in developing countries should involve consideration of a much broader set of economic and political-economy theories; it will also require wide-ranging exposure to different historical trajectories of development.

The panel on Economics Education also had me attempting to answer three questions at the same panel: 1) How was the predictive performance of the academic, national, and multilateral institutions before and during the Great Recession? The recession was, for the most part, unforeseen; in fact, wrong predictions abounded, most of them based on overly optimistic DSGE-type models—even after the economic contraction had started. 2) How did the economists react to this poor predictive performance? a) The majority con-

ceded that they had failed to see the disaster coming, so there were indeed lessons to be learned by all. b) A handful of economists correctly forecast the financial crisis and the resulting recession, but they were ignored by the mainstream. c) Others actually argued that they had no responsibility to issue alerts on impending economic storms. 3) How did the financial crisis and the recession after it affect economics education? There have been heated debates about universities' curricula in this area, but little has changed, not only in the advanced countries, but also in the developing world.

Erinç Yeldan's take on Economics Education was newsworthy. First, he pointed to toxic economic texts and toxic economics as the real cause underlying the global crisis that started in 2008. To be sure, excessive financialization and worthless mortgage-based assets had played their parts as well, but secondarily so. Second, he called mainstream policy prescriptions "false" for their reliance on an unrealistic ideological foundation. This consisted of a fantasy in which rational expectations and the business cycle underlay perfectly competitive markets, complete with nice and smooth, convex technologies, 100% foresight, and full information sets available. He maintained that the current financial bubble was being driven upward by household debt and private credit and was not explicable by models of the representative agent operating in a perfect-foresight world with full information and optimizing on a lifespan-consumption path. Furthermore, he labeled as misconceived any policy recommedations that were inspired by neoclassical trade theory, itself based on static comparative-advantage calculations.

7. Concluding Comments

At ICE-TEA 2014, a total of 241 invited and contributed papers were given in a total of 63 sessions. Of these, 54 sessions were contributed, and nine were invited. In terms of topics, 22 sessions were devoted to growth and employment issues, while 10 concerned themselves with monetary and financial challenges.

This year's conference was truly an international forum for worthwhile presentations and discussions, with 327 registered participants from 23 countries spanning five continents: Asia, Australia, Europe, North America, and South America.

Many of the participants voiced the feeling that the conference was being held at a critical juncture, given the continuous flow of bad economic news emanating from almost every corner of the globe—not to mention the geopolitical risks unfolding in areas worryingly close to the Turkish border.

Here, I am using the term "critical juncture" in the sense defined by Acemoglu and Johnson (2012, pp. 116-122): "Critical juncture is a major event or confluence of factors disrupting the existing economic or political balance in society. … On the one hand, it can open the way for breaking the cycle of extractive institutions and enable more inclusive ones to emerge…. During critical junctures, a major event or confluence of factors disrupts the existing balance of political or economic power in a nation. These can affect only a single country. Often, however, critical junctures affect a whole set of societies."

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Capitalism as a Complex Evolving System*

*David Colander***

Abstract

Economies are often classified into polar divisions—socialist, capitalist, communist. That approach is not especially useful. Successful systems are by nature pragmatic, and they evolve into blended pragmatic systems that quickly move out of any pre-specified space. Accepting that all systems are pragmatic has significant implications for economic thinking; for example, it suggests that economist's tendency to see the economy and government as separate and not co-evolving intertwined systems mischaracterizes the policy problems facing society. The paper briefly outlines the policy implications of seeing the economy as a complex evolving system, arguing an important policy goal of government is to set up an ecostructure that helps individuals achieve their ethically acceptable desires and goals for a life well lived. Theoretical debates about market vs. government do little to further that goal.

JEL codes: P1, P2, P4, L2, O2

Keywords: Complexity, economic systems, capitalism, socialism, government policy

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** College Professor, Middlebury College. Colander@Middlebury.edu

1. Introduction

The future of capitalism is pragmatism. Of course, the present of capitalism is also pragmatism, as was the past of it, so by predicting pragmatism for the future of capitalism, I am not saying much. All successful systems are by nature pragmatic. They adapt and evolve as the situation changes, or they disappear.

I start with this argument because, in my view, economists' classification of systems into polar divisions—capitalism and socialism—has not been especially useful to society: it has shed little light on the current problems vexing us or on the future evolution of our economic system. In fact, the division misses the pragmatic nature of evolving systems, with the government and the market moving forward in tandem. In reality, there is no such thing as pure capitalism or unadulterated socialism in practice; these terms still live on due to economists' desire to see the economy as not being subject to evolutionary forces. Systems are, have always been, and always will be a pragmatic mix of both philosophies, and that pragmatic mix changes over time.

One problem with the capitalism/socialism dichotomy is that a society doesn't explicitly choose what system it wants. Instead, the members of a society make billions of local choices daily that, when combined, lead to whatever system we happen to have. That's why talking about systems as if they were somehow chosen by government or society, and as if one were better than the other, takes us nowhere. Despite the almost unending debates in our profession about the nature of capitalism, the spirit of socialism, and whether socialism is better than capitalism or vice versa, there has been no theoretical resolution, nor can there be. The most that can be said for these debates is that they keep professors in jobs and are enjoyable as works of literature. The reality is that complex systems, of which our social system is an example, are beyond full categorization and comprehension. They are constantly evolving, and to think that, from our limited time-and-space perspective, we are going to boil down the essence of any system into a glib term is the height of hubris. The terms now in use are far too coarse for that.

A second problem with the capitalism/socialism dichotomy is that it presents a polar characterization of the roles of government and the market. It sets forth one economic system in which government directs the economy—socialism—and another system in opposition to that—capitalism—where the market controls the economy. This polar description sets up government and the market as alternatives, not complements. Yes, they are alternatives, but they are also complements: the market needs a government to function, and a

government needs a market to function. If we want to improve society, much more of policy should focus on how to get one to complement the other, thereby making the combined system better, rather than scheming how to engineer the replacement of one with the other. The existence of a good market implies a good government in the background, and vice versa.

A third problem of the philosophical face-off is that it associates concern for social issues with support for government-dominated efforts to achieve social ends. It assumes that if one cares about social issues, one cannot support market solutions to social problems; one has to favor government control. Similarly, if one has no interest in social issues, one must be a free-market supporter. Neither of these needs be the case. There is no inherent connection between the degree of feeling one has for the less fortunate and one's support or non-support of the free market.

The polar juxtaposition of government and the market is deeply embedded in our profession's "economics of control" policy narrative, which is at the heart of the textbooks: you have government, and you have the market. The invisible hand of the market coordinates individuals' selfish actions reasonably well, and it would do so perfectly but for certain problems, such as public goods and externalities. These problems, called market failures, require government policy to correct for them. It does this by shifting the levers controlling the system to maximize social welfare, which in the current policy narrative is interpreted as identical to economic welfare.

While theoretically state intervention is called for by this economics-of-control model, the state's ability to straighten out these flaws is undermined by "government failure," where political considerations and information shortfalls prevent it from exerting optimal control. According to economists' standard policy narrative, if there were no government failure, a market economy, after government intervention, would maximize social welfare.

As I argue in my recent book, *Complexity and the Art of Public Policy: Solving Society's Problems from the Bottom Up* (Colander and Kupers, 2014), this current policy narrative, while helpful for some issues, is highly limiting. Specifically, economists' exclusive focus on it has kept them from exploring questions of endogenous norms and tastes, the ethical and moral dimensions of economic decisions, and government's role in shaping the eco-structure within which markets operate. On these unexplored dimensions of policy depend much of the future success of nations.

2. Economics for an Affluent Society

The goal of government policy, and of economic systems, is to allow the greatest number of people to have "a life well lived"—to live as full and productive a life as possible, consistent with others also living a full and productive life. It is not to accumulate and consume as much "stuff" as possible. The reality is that the production of GDP in the affluent West has little direct correlation with a life well lived. The inhabitants of the Western world could do quite well with 5% fewer materialist goods than they currently have without feeling materially constrained. Their sense of success depends much more on the social, spiritual, and psychological dimensions of their lives—dimensions that the current economic policy narrative ignores even though the policies we economists propose affect all dimensions of life. This means that in the newly industrialized countries, such as Turkey, economic policy choices need to encompass more than the question of "How do we internalize the externalities?" They need to involve a consideration of how economic policies are influencing the parameters within which economic activities take place, the nature of property rights, and the setting of a moral foundation for government.

When one starts thinking of economic policy in terms of a life well lived, rather than facilitating the getting of as much stuff as possible, one comes to a different sensibility about economic policy than the prevailing one. Western economies, such as the US and Europe, are wealthy, with enough goods available to satisfy the material needs of our populations many times over. Nonetheless, the single focus of our economic policy tends to be on increasing GDP, i.e., the growth of material wealth, not on how the market and the economy can contribute to a broader concept of social welfare, as defined by individuals themselves. That, to my mind, is a serious policy failure. What must be realized is that economic policymaking should be much more complicated than the modern narrative allows.

Many economists have long recognized this. Among the more prominent is Adam Smith, who is often pictured as an economist who believed that the market could be relied on to transform people's greedy materialist interests into the social good. That's not an accurate portrayal of Smith's thinking; his argument was much more subtle. Specifically, Smith's private interests went well beyond selfish materialism; they included what might best be called private social interests—people's private concern for others and their goals of achieving the type of society they wanted. Smith made that clear in his *Theory of Moral Sentiments*. This isn't about people being told to be good—it is about tastes and goals that include a social dimension. For most, a life well

lived includes contributing to the social good. Doing so makes us feel good about ourselves, similar to the pleasure we feel in having the use of a car whenever we want it. So when one talks about goods, one must mention social goods—effecting some social change in the world that one would like to see—as well as private materialistic goods, like buying a McMansion. These social goods can be just as selfishly desired and pursued as private material goods. For his part, Smith approved of such private social goods being a part of an individual's utility functions. In Smith's view, empathy, passion, and the drive for a better world were good, whereas materialistic greed was not.

In relating his ideas to policy, Smith didn't emphasize these subtleties because when he wrote in the late 1700s, society was largely materialistically poor: many people were starving. Within that context, when Smith thought about social interests, growing a materialistic economy so that it could feed, shelter, and clothe people was his central focus. For Smith, capitalism was ideal because it led to growth in physical material output, which in turn led to a reduction in poverty and starvation.

He argued that, in practice, attempts to do good by working through government entities were generally undermined by practical problems, often ending up doing more harm than good. As a result, an individual's efforts to do good would not put him in sight of his social goals. Smith wrote *The Wealth of Nations* to complement his *Theory of Moral Sentiments* and to show how, given the right institutional structure—specifically one that encouraged entrepreneurs and maintained significant competition—social goals could, paradoxically, be reached by people pursuing their private interests.

Entrepreneurs—passionate, driven people—were central to Smith's story, as they are to any evolutionary history of policy. They contributed in two ways. First, they were the agents who translated technological change into everyday society, lowering the costs of goods and thereby passing benefits onto the consumer. Entrepreneurs were the ones who introduced disruptive advances that broke up guilds and the mercantilist system, which had been blocking the introduction of machinery that could more efficiently produce goods to bring about a rise in the population's materialistic welfare. Then, because of competition, these men conveyed most of the advantages of such technological developments to the broader public.

Second, entrepreneurs contributed to the social good by reinvesting their profits in further technology and growth. Then, in their retirement and death, these frugal non-materialists gave away much of their wealth to fulfill social goals. Indeed, that's still happening today. Bill Gates and Warren Buffet are recent examples of this dual role that entrepreneurs play; in the 19th century,

Andrew Carnegie argued strongly for such an entrepreneurial role in his *Gospel of Wealth*, and he lived it in his support for public libraries. Capitalist entrepreneurs have always been far more complicated figures than the simplistic stories of greedy businessmen would imply.

Despite their support for the market, later classical economists, such as John Stuart Mill, were no cheerleaders for greed and profit maximization. They, like Smith, saw private interests as including social interests. Moreover, they fully expected that, because of the ongoing economic growth, the future economy would meet people's economic needs. Consider John Stuart Mill's vision (1848) of the future of capitalism. He described it as a state in which people would have transcended material needs and would be concerned with the deeper issues in life—interrelationships, social justice, ideas…. Mill pictured an ideal society that would care far more for social welfare and far less for welfare—a society in which "while no one is poor, no one desires to be richer, nor has any reason to fear being thrust back by the efforts of others to push themselves forward."

Keynes (1930) expanded on Mill's vision. In *Economic Possibilities of our Grandchildren*, he wrote what, in my view, many classical liberals saw as the inevitable future of humankind. He writes:

> When the accumulation of wealth is no longer of high social importance, there will be great changes in the code of morals. We shall be able to rid ourselves of many of the pseudo-moral principles which have hag-ridden us for two hundred years, by which we have exalted some of the most distasteful of human qualities into the position of the highest virtues. We shall be able to afford to dare to assess the money-motive at its true value. The love of money as a possession—as distinguished from the love of money as a means to the enjoyments and realities of life—will be recognized for what it is, a somewhat disgusting morbidity, one of those semi-criminal, semi-pathological propensities which one hands over with a shudder to the specialists in mental disease. All kinds of social customs and economic practices, affecting the distribution of wealth and of economic rewards and penalties, which we now maintain at all costs, however distasteful and unjust they may be in themselves, because they are tremendously useful in promoting the accumulation of capital, we shall then be free, at last, to discard. –JM Keynes

Clearly, Mill's and Keynes's vision of the future of capitalism was wrong. What they missed was the fact that our system is not one of unfettered capitalism, but one of pragmatism and it is not guided by a forward-looking collective rationality. It evolves in ways that reflect inertia and strong pressure for institutional survival, even when those institutions no longer fit the society's needs. If economists are to contribute to the policy discussion in a

worthwhile way, we need to understand the central role of institutional structure, as Mancur Olson and Elinor Ostrom's work does, and integrate that understanding into our policy considerations.

Good policy does much more than internalize externalities; it influences the evolution of systems in positive ways, creating the framework within which individuals can have a life well lived. Therefore, one must consider policy's effects on norms, culture, and on the eco-structure within which individuals interact. Government cannot control any of these, yet it can't help but influence them. That is why that influence needs to be considered in policy. How to conduct that "influence policy" is a difficult question, but it is one that economists should be exploring. That's the argument we make in complexity policy: economists' policy considerations have to become much broader than they currently are.

As I stated above, the evolution of an economic system is powered by a set of bottom-up decisions that, in the aggregate, can create a situation that does not even come close to meeting its potential. Capitalism would never have succeeded had it not evolved greatly away from how early thinkers pictured it. The problem is that the way it has evolved is preventing us from moving toward the type of society that Mill and Keynes had in mind.

Here is my summary explanation of what happened. The individual capitalist entrepreneur who provided the capital and the know-how in Smith's day soon became obsolete. Had we stayed with entrepreneurial capitalism, Western economies would never have experienced the growth that we have had. Instead, it gave way to institutional changes that allowed important divisions to spring up between ownership and control of businesses. This evolution (never envisioned by Smith) culminated in the concept of limited liability for wealth holders. This enabled the transfer of wealth without the transfer of full liability—a remarkable advance in the history of economic development. The legal and institutional structure of Western economies was transformed in order to give birth to that innovation.

On the back of these changes, capitalism matured, developing from early entrepreneurial capitalism into the "adult" world of corporate managerial capitalism and corporate financial capitalism. This process was encouraged and ratified by government policy; governments set up the eco-structure to push the modified systems to flourish. They did so by establishing a commercial code within the legal structure, giving the newly developed, materialistically focused enterprises the means to survive and even thrive. The result was what has sometimes been called corporate capitalism.

This corporate capitalism was not that theorized about by Adam Smith. It involved the state to a much larger degree than he had ever imagined and featured the transferring of some of the state's power to private institutions (corporations), as it had in mercantilist times. This pragmatic giving away of government power to collective private enterprises was seen as economically beneficial, since it was believed it would foster continued economic growth.

In their discussion of the future, classical economists did not focus on how this institutional evolution might transform the system through its influence on societal tastes and norms. They have apparently missed the fact that, just as individuals strive for survival, so, too, do organizational forms. An organizational form, once created, is bent on perpetuating its existence and figures out strategies for accomplishing that. Once for-profit corporations had met the immediate material *needs* of society, they learned how, through advertising, to turn material *wants* into material needs. Doing so provided them with additional profit-making opportunities, which were far less closely connected to social-welfare concerns than they had been earlier. The more prosperous society became, the greater the gap between the outcome of the system and a reflective view of social welfare.

Whereas material needs are limited, material wants are essentially infinite, so this change gave for-profit firms an extended, almost unlimited, role in an increasingly materialistic society. As that happened, capitalism changed its very nature. Production became less important, and advertising, marketing, and branding—all mechanisms to disseminate the perception that existing for-profit companies are relevant—became central to capitalist societies; manufacturing and production became secondary. The result is our current system, where we produce and consume lots and lots of stuff, but seldom is it satisfying.

3. Complexity, Evolution, and a For-Benefit Mindset

The overall goal of social policy should be to guide government to help individuals achieve their ethically acceptable desires and goals for a life well lived. That includes materialistic comfort, but not materialistic gluttony. In an affluent society, especially among its better-off members, ethically acceptable goals should be prominent among their private social goals, overshadowing their private materialistic goals. Unfortunately, existing institutions do not do a good job of helping individuals reach such private social goals. What they offer is a subliminal suggestion to seek one's private goals in the marketplace or to salve one's conscience vis-à-vis social goals by looking to the government to do the heavy lifting. We need a policy that encourages the founding of institutions dedicated to helping people achieve their ethically appropriate

private social goals from the bottom up, turning our backs on the traditional notion that social goals can only be met through top-down intervention by government. To oppose government top-down provision of social goods is not inconsistent with non-materialist, social-oriented goals.

Thus, one emerges with the conviction that bottom-up institutional change is essential if we are to redirect individuals' sights from mere materialist gain to beyond, where visions of social improvements lie. Toward that end, I am now working on a project whose mission is to stimulate the creation of for-benefit institutions as an alternative to for-profit and not-for profit institutions (Colander, 2011; Colander and Kupers, 2014). The purpose of for-benefit institutions would not only be to provide material returns for the owners but also to deliver the social goals of those same investors. Their very design is recognition that social and material goals must be married.

Striving toward social goals is built into the DNA structure of the for-benefit corporation, which is socially responsible because its owners want it to be so, not because the state orders it to be so. By its nature, it makes it easier for social entrepreneurs to bring together their social and private goals, rather than compartmentalize them. The argument for for-benefit enterprises is precisely that advanced by Adam Smith on behalf of for-profit businesses: society's goals are much more likely to be realized if they are pursued by individuals following their self-interest, which encompasses their privately held social goals.

For-benefit corporations are very similar to their for-profit counterparts. Both entities represent the ideal visions of the shareholders and the management. Where they differ is that the principals within the former are not only concerned with their monetary goals; they have their eyes on their altruistic targets as well. In this way, for-benefit companies match the way humans are wired—to care simultaneously about our own quality of life and that of others. Corporations will only act in more socially responsible ways when they are told to by their shareholders or key members of senior management.

4. A Final Comment

Some may see a society organized around for-benefit companies as a pipedream; I don't. As Adam Smith long ago recognized, people are naturally a mix of social and selfish concerns. How those concerns are expressed depends on the institutional structure governing their society. By consciously focusing policymaking on positively influencing the expression of that mix, the mix can be altered. An entrepreneur can derive joy out of accomplishing a social milestone, like getting poor children vaccinated, as opposed to pur-

chasing a second multimillion-dollar mansion or acquiring a trophy wife. It has been my experience that most of the highly successful entrepreneurs that I know say that their materialistic needs are more than satisfied. What they are looking for now is socially productive channels into which they can deploy both their considerable wealth and their energies. Indeed, venture philanthropy is thriving, and the for-benefit corporate model offers a path for philanthropists to explore in their bid to make a marked difference in the lives of others. Government should be encouraging such sentiments in this rarefied population and capitalizing on it.

For-benefit companies will give social entrepreneurs the tools to affect society directly—by leveraging their abilities to concentrate on profit-making activities and society-betterment schemes at the same time, unlike the standard for-profit corporation. The result of this sea change in business culture will be nothing less than revolutionary, just as the birth of the corporation ushered in a new and richer era. If today's social entrepreneurs invest as much passion into their altruistic activities as their forerunners of long ago applied to the pursuit of profit, we will see a massive expansion in the provision of social welfare that will rival the economic growth and the corresponding rise in material welfare that have characterized the past two centuries.

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Productivity, Demographics, and Growth in Turkey: 2004-12[*]

Murat Üngör[**] *M. Koray Kalafatcılar*[***]

Abstract

Among all the OECD countries, Turkey had the second highest average annual GDP growth (measured in constant local currency) and the fifth highest average annual growth of purchasing power parity (PPP)-adjusted per capita income between 2004 and 2012. We study the sources of this high growth era, comparing Turkey with other OECD countries and breaking down GDP per capita into three components: labor productivity, the ratio of employment to the working-age population, and the ratio of the working-age population to the total population. Our findings suggest a productivity-based growth era in Turkey before the global crisis and an employment-based one in the post-crisis period. We then provide a detailed analysis of contributing factors to notable aspects of this economic expansion: the role of capital deepening and higher total factor productivity (TFP) in aggregate output per worker growth; and the rise in female employment, especially in the service sector.

JEL codes: J10, O11, O57

Keywords: Demographics, growth, productivity, Turkey

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[**] Central Bank of the Republic of Turkey, Research and Monetary Policy Department, İstiklal Caddesi 10, Ulus, 06100 Ankara, Turkey ▪ Murat.Ungor@tcmb.gov.tr▪

[***] Central Bank of the Republic of Turkey, Research and Monetary Policy Department, İstiklal Caddesi 10, Ulus, 06100 Ankara, Turkey ▪ Koray.Kalafatcilar@tcmb.gov.tr▪

1. Introduction

There are many aspects of long-run economic growth and development that are worth studying. The relationship between demographic change and economic development, for example, is one such aspect, one that has been marked by a degree of controversy. Economists, demographers, and social scientists have debated the effects of population size (and increase) on economic growth, i.e., whether a rising population restricts, promotes, or is independent of economic growth.[1] In recent years, the possible effects of demography on the global economy have been attracting much more attention due to changes in the age structure of the global population and the overwhelming concern with aging populations throughout the advanced countries (Appendix A.1).

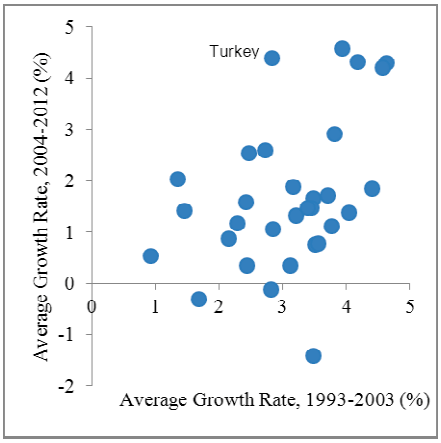
This paper focuses on the Turkish experience in the last decade. Turkey is an interesting case within the OECD, since she is one of the poorest members of the group when measured by PPP-adjusted per capita income. In fact, Turkey had the lowest (after Mexico) PPP-adjusted per capita income within the OECD as of 2012. In addition, Turkey had the worst employment to working-age population ratio (45% in 2012) among all the OECD members. Similarly, labor-force participation was only 50% in 2012; perhaps more dramatically, the female labor-force participation rate was just 29.5% in the same year. However, despite those dreary statistics, Turkey has been experiencing a remarkable transformation over the last decade as its GDP and per capita income have surged ahead. Figure 1 illustrates this phenomenon with the latest data available from the World Development Indicators Database for all of the OECD countries, starting with 1993.

Panel (a) in Figure 1 shows annual average growth rates of GDP (measured in constant local currency) for all 34 OECD member over the period 2004-12 against their counterparts in the 1993-2003 period. Turkey's GDP grew at an annual average rate of 2.83% in the 1993-2003 period, placing it in 23rd position within the OECD. On the other hand, Turkey recorded the second highest average annual growth rate of GDP in the OECD between 2004 and 2012, 4.39% (Israel was in first place, with 4.58%). Greece, Italy, and Portugal turned in the worst performances in the OECD during this time. Turkey's economic dynamism was all the more remarkable for occurring during and after the global crisis. In the period 2009-12, when most of the OECD countries were growing at a less than 2% clip, Turkey was racing ahead to claim the highest average annual growth rate of GDP in the group: more than 6.5%.

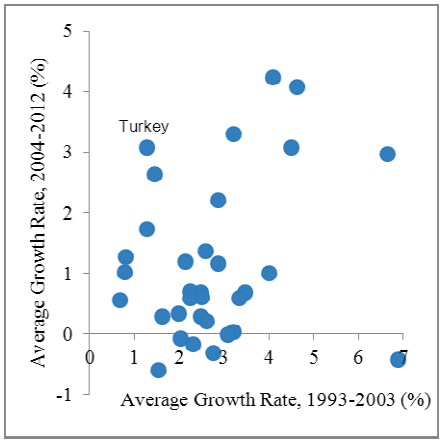
[1] It is beyond the scope of this study to examine different arguments. See Bloom and Williamson (1998) and Bloom et al. (2003) for general discussions of this issue.

Figure 1. Growth rates in the OECD

(a): GDP (in constant local currency) growth rates



(b): GDP per capita (PPP-adjusted) growth rates



Source: World Development Indicators Database (online access: May 9, 2014).

Panel (b) in Figure 1 shows annual average growth rates of GDP per capita (PPP-adjusted) in all 34 OECD members over the period 2004-12 against the same values in the 1993-2003 period. Turkey's GDP per capita expanded at an annual average rate of 1.29% in the 1993-2003 period, putting it in 30th place. On the other hand, Turkey rose to fifth place (after Slovakia, Poland, Chile, and Korea) during 2004-12, with a 3.07% average growth rate.

The objective of this study is to assess the roles of different factors (i.e., productivity, employment, and demographics) on per capita income growth in Turkey during 2004-12 in comparison with other OECD countries. Rather than trying to cover all relevant topics under the broad aegis of economic growth, we concentrate on the effects of productivity and certain changes in the labor market and national demographics on per capita income growth. We break down GDP per capita into three components: labor productivity, the ratio of employment to the working-age population, and the ratio of the working-age population to the total population. This decomposition is useful for distinguishing the overall population from the working-age population and provides insights into how shifts in the age structure of a population (in addition to improvements in labor productivity) impact economic growth.

For 2004-12, we find that of the positive movement in per capita income, output per worker accounted for 45.5%; a rise in the employment-to-working-

age population ratio constituted 39.0%; and an uptick in the ratio of the working-age population to the total population explained the remaining 15.5%. Likewise, in 2004-09, our calculations show that output per worker was the most important of the components. On the other hand, a jump in the employment-to-working-age population ratio contributed to around two-thirds of the growth in per capita output during 2009-12. In other words, our findings indicate a productivity-based growth era before the global crisis and an employment-based one in the post-crisis period.

We then provide further details to discuss our findings. Specifically, we focus on the two areas of Turkish changes in productivity and demographics. First, we examine the drivers of per capita economic growth, identifying them as capital, labor, education, and TFP. TFP growth is measured as the difference between the growth rate of output and the share-weighted growth rate of inputs. Based on the latest data from various sources, we show the quantitative importance of capital deepening and TFP growth in bringing about Turkey's economic advance during 2004-10. Second, we touch upon the issue of female employment in Turkey. In recent years, there has been greater female participation in the Turkish labor force. This matters, since major boosts in national income may occur with women entering the workforce. Interestingly, female labor-force participation in Turkey is still very low in comparison to other OECD countries (around 30% as of 2012). Indeed, the participation rate has shown a downward trend over the last 50 years.[2] We observe an emerging literature in recent years seeking to understand the link between the changes in the sectoral composition of economic activity and the variations in female participation in the labor force (Buera et al., 2013; Rendall, 2014 and the references therein). We present a decomposition exercise and note that female employment in Turkey has been particularly concentrated in the service sector.

Our paper is most closely related to the literature on the economic history of Turkey. Of special interest are highly detailed studies of the country's historical growth experience. For example, Altuğ et al. (2008) examine the determinants of long-term economic growth for Turkey over the 1880-2005 period, conducting a growth-accounting exercise across broad historical periods and policy regimes. Adamopoulos and Akyol (2009) argue that the divergence in sectoral productivity and tax policies, between Turkey on the one hand and the US and Southern Europe on the other, can account quantitatively for most of Turkey's relative underperformance between 1960 and 2003.

[2] An investigation of the reasons behind the historically low female labor-force participation in Turkey is beyond the scope of this study. See, e.g., Tunalı and Başlevent (2006); World Bank (2009).

Çiçek and Elgin (2011) use growth accounting and a dynamic general equilibrium model to profile the growth performance of Turkey between 1968 and 2004. İmrohoroğlu et al. (2014) suggest that if Turkey had managed to emulate Spanish agricultural productivity growth from 1968 to 2005, its growth in aggregate GDP per capita would have been much higher. Adamopoulos and Akyol (2009) and İmrohoroğlu et al. (2014) employ multi-sector models of sectoral change to assess the impact of inter-sectoral labor reallocation on aggregate productivity. In an econometric analysis of the role of education in economic growth, İnal and Akçabelen (2013) study the period of 1960-2009 and outline the key role played by human capital and technology transfer in determining output per worker in Turkey. Our paper complements these studies by exploring the recent growth performance of Turkey.[3] Moreover, we provide a comparison with other OECD countries during 2004-12.

In addition, our study builds on other studies investigating how macroeconomic aggregates are affected by demographic developments, such as the relationship between population age structure and labor supply, saving rates over the life cycle, or housing demand. A case in point is the research done by Ceritoğlu and Eren (2013) on the potential impact of demographic changes on labor-force participation rates in Turkey. They argue that, assuming that a change in the structure of the population will be accompanied by rises in both labor-force participation and the number of college graduates, the household saving ratio should increase by 7.6 percentage points between 2010 and 2050. Arslan et al. (2014) investigate the effects of age-structure dynamics on housing demand in Turkey, stating it may climb at a pace of around 1.5% annually on average from 2009 to 2050 (with more than two-thirds of this increase to be contributed by population growth and the rest by the changes in the age structure of the population).

The rest of the paper is organized as follows: Section 2 delivers a brief account of the Turkish experience of economic growth and demographic change. Section 3 conducts a decomposition of GDP per capita growth in Turkey and renders a comparison with other OECD countries during 2004-12. Section 4 enriches the findings with details on productivity gains and sets up an accounting framework to evaluate the contributions of various factors to the changes in output per worker. Section 5 presents a link between demographics and economic activity in Turkey, with a focus on the increasing female employment rate and its intensity in the service sector. Section 6 is the conclusion. Additional tables and figures are provided in Appendix A.

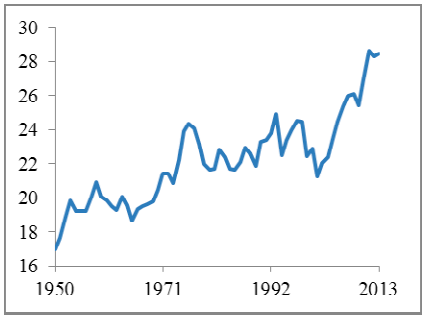
[3] For some other related studies, see Saygılı and Cihan (2008); Ismihan and Metin-Ozcan (2009); Gürsel (2011); Atiyas and Bakış (2013); Aysan et al. (2013); Üngör (2013) and the references therein.

2. Some Facts

Panel (a) in Figure 2 shows GDP per capita in Turkey relative to the US during 1950-2013.[4] The period of economic growth that began after the end of World War II reached its climax in 1976. Economic growth was volatile, and macroeconomic instability became a distinctive characteristic of the post-1980 period. GDP per capita in Turkey rose from about 22% of the American level in 1980 to about 25% in 1993. In the vulnerable economic environment of the 1990s, three major economic crises occurred, and Turkish GDP per capita shrank to 21% of the US level in 2001. However, the 2001 crisis paved the way for the introduction of structural and institutional reforms. As a result, GDP per capita relative to the US reached more than 28% in 2012.

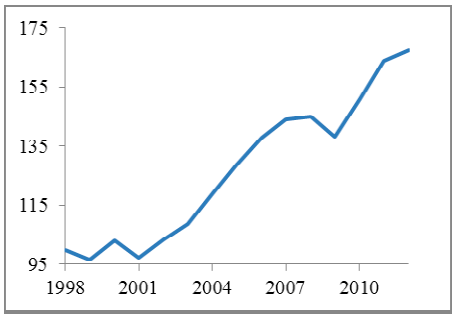
Figure 2. Growth experience of Turkey

(a): GDP per capita relative to the US (%), 1950-2013



Source: The Conference Board Total Economy Database.

(b): Real GDP in Turkey (1998=100), 1998-2012



Source: TurkStat.

Panel (b) in Figure 2 displays the time-path of GDP (at 1998 prices) during 1998-2012, where the value for 1998 is normalized to 100. The 2001 crisis resulted in a substantial output loss and a 5.7% contraction in real GDP. The Turkish economy climbed out of this hole, expanding at an average annual rate of 6.9% between 2002 and 2007. Two banner years were 2004 and 2005 (thanks in part to the global environment), when real growth hit 9.4% and

[4] Data are from the Conference Board Total Economy Database (January 2014). The level estimates are expressed in 1990 US dollars and converted at PPP to adjust for differences in relative price levels between countries. See Üngör (2013) for a recent detailed comparative study o the convergence experience of Turkey.

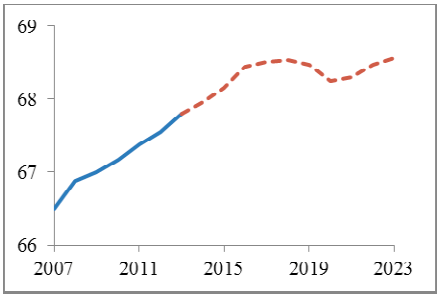
8.4%, respectively. Then, it fell to 6.9% in 2006 and 4.7% in 2007. With the advent of the global crisis, Turkish real GDP grew by a meager 0.7% in 2008, and actually contracted by 4.8% in 2009. But the following year, the Turkish economy was back on track, recording real growth of 9.2%, then 8.8% in 2011. In 2012, however, Turkey's rate of economic growth slowed to 2.2%.

Parallel to these growth rates have been demographic changes in Turkey. The panels in Figure 3 show the ratio of working-age people (15-64) to total population and the *dependency ratio* (defined as the numbers of under-15s and over-65s in the population as a proportion of those aged 15-64) for Turkey during 2007-23.[5]

The size of the working-age population not only grew in absolute terms, but also in relative terms. According to Panel (a), the ratio of the working-age population to the total population went from 66.5% in 2007 to 67.6% in 2012. The projections suggest that there will be further increases, pushing this ratio to 68.6% by 2023. The dependency ratio, calculated as the young and the elderly population divided by the working-age population, reflects how many people each working-age person has to support. Panel (b) presents this ratio as decreasing from 50.4% in 2007 to 48.0% in 2012. The projections suggest that the dependency ratio will be 45.8% in 2023.

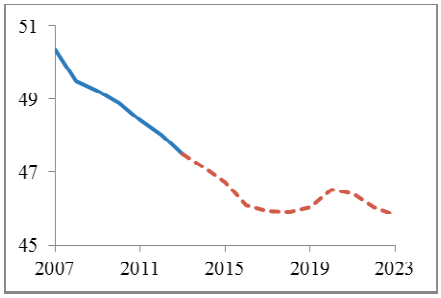
Figure 3. Demographics in Turkey, 2007-23

(a): Working-age to total population (%)



Source: TurkStat.

(b): Dependency ratio (%)



Source: TurkStat.

[5] Data for 2007-12 are based on the Address-Based Population Registration System (ABPRS), which was established in 2007, and data for 2013-23 are from the projections of TurkStat. One of the purposes of establishing the ABPRS was to establish a National Address Database (NAD) that would cover all the addresses within the boundaries of the country.

Demographic transition offers growth opportunities to countries:[6] *The first demographic dividend*, which we focus on in this paper, refers to effects arising from the higher share of working-age population within the total. The growth rate per working-age population is important from the viewpoint of the supply capacity of any economy. *The second demographic dividend*, on the other hand, refers to the permanent effects on growth. As the share of the working-age population increases (and the shares of the young and old dependents decrease), total saving in the economy may go up, which may, in turn, foster faster physical and human capital accumulation. These factors are likely to boost productive capacity in the long run (Bloom et al., 1999).

3. A GDP Decomposition

3.1. Framework

We decompose GDP per capita *(Y / P)* at time *t* into three components: labor productivity *(Y / L)*, the ratio of employment to the working-age population *(L / WP)*, and the ratio of the working-age population to the total population *(WP / P)*.[7]

$$(Y / P)_t = (Y / L)_t \; x \; (L/WP)_t \; x \; (WP/P)_t \tag{1}$$

Here, *Y* is real GDP, *P* is total population, *L* is the employed population, and *WP* denotes the working-age population. Thus, real GDP per capita can be expressed as the product of real GDP per worker (or labor productivity), employment-to-working-age population, and the ratio of working-age population to total population. We take logarithms and decompose the average annual growth rate of output per worker over a number of years, *z*, into

$$\begin{aligned} &\frac{\log\left[(Y / P)_{t+z}\right] - \log\left[(Y / P)_t\right]}{z} = \\ &\frac{\log\left[(Y / L)_{t+z}\right] - \log\left[(Y / L)_t\right]}{z} + \frac{\log\left[(L / WP)_{t+z}\right] - \log\left[(L / WP)_t\right]}{z} \\ &+ \frac{\log\left[(WP / P)_{t+z}\right] - \log\left[(WP / P)_t\right]}{z} \end{aligned} \tag{2}$$

[6] In this paper, we do not discuss the underlying factors and dynamics of demographic transition. See Lee (2003); Galor (2012) and the references therein for such issues.

[7] See, e.g., Blanchard (2004); Bloom et al. (2010); Marattin and Salotti (2011) for similar decompositions.

This formulation lets us understand the magnitude of each contribution to per capita income growth, taking the change in income per capita and splitting it into changes in output per worker (the first term on the right-hand side), changes in the ratio of employment to the working-age population (the second term on the right-hand side), and changes in the demographic ratio (the last term on the right-hand side). The last term corresponds to the first demographic dividend referred to in Section 2. In cases where growth is partly accounted for by changes in the population structure, it suggests that the country is benefiting from a demographic dividend, as its share of the working-age population within the total population is widening, i.e., fewer dependents per working-age adult. Thanks to this decomposition, we are able to measure this effect directly. This framework informs our discussions throughout the paper.

3.2 Results for Turkey

We plug the Turkish data into the accounting exercise presented in Equation (2). Our sample period is 2004-12, which incorporates recent revisions in the national accounts. Of most interest to us are the labor-market and population statistics, whose new series began in 2004 in the Turkish Statistical Institute (TurkStat) publications.[8] In addition, this period was a (relatively) high growth one for Turkey, as shown in Figure 1. GDP (at 1998 prices) data are from TurkStat. Data for population and employment are from the "Labor-Force Status by Non-Institutional Population, Years, and Sex" table of TurkStat.[9] Table 1 shows the results.[10]

During 2004-07, per capita income grew at 5.19% per year and output per worker increased 4.61% per year. In other words, the expansion in output per worker made up more than 88% of the increase in per capita income between 2004 and 2007. Additional modest contributions came from rising participation rates and an enlargement in the working-age share of the total population. Similarly, declines in labor productivity are primarily responsible for the contraction of income per capita during the global recession (in the 2007-09 period). After 2009, the role of labor productivity diminished. The key factor in

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[8] The new series of household labor-force surveys began in 2004. At the same time, a new questionnaire covering all variables requested by Eurostat has been used since 2004. In Appendix A.2, we repeat our exercise for the 1988-2003 period.

[9] We use a non-institutional population and a non-institutional working-age population. The non-institutional population comprises all the population excluding the residents of dormitories of universities, orphanages, rest homes for elderly persons, special hospitals, prisons, and military barracks, etc.; and the non-institutional working-age population indicates the population 15 years of age and over within the non-institutional population.

[10] In Appendix A.3, we extend our analysis with the data for average annual hours actually worked.

the speed-up of additions to per capita income was the observed run-up in the employment-to-working-age population ratio during 2009-2012, to the tune of 64%.

Table 1. Decomposing GDP per capita growth in Turkey (average annual changes, %)

		Contribution to output per capita of		
Period	*Y/P*	*Y/L*	*L/WP*	*WP/P*
2004-05	6.80	5.88	0.49	0.43
2005-06	5.43	4.91	0.09	0.43
2006-07	3.34	3.03	-0.12	0.43
2007-08	-0.53	-1.52	0.63	0.36
2008-09	-6.11	-5.34	-1.39	0.62
2009-10	7.63	2.76	4.37	0.51
2010-11	6.97	1.91	4.51	0.54
2011-12	0.53	-0.69	0.82	0.41
2004-07	**5.19**	**4.61**	**0.15**	**0.43**
2007-09	**-3.32**	**-3.43**	**-0.38**	**0.49**
2009-12	**5.05**	**1.33**	**3.23**	**0.49**
2004-12	**3.01**	**1.37**	**1.17**	**0.47**

Source: TurkStat, Authors' calculations.

In Turkey, job creation and the enhancement of labor and employment policies have held center stage since 2008 (World Bank, 2013). Indeed, certain pro-employment incentives may be responsible for the jump in the employment-to-population ratio in recent years. For example, OECD-ILO (2011) reports that the Turkish government's pro-business measures (such as a general reduction in social-security contributions and significant cuts in social-security and corporate-tax payments for enterprises investing in the country's less developed regions) that were put in place from 2008 onwards have led to greater recruitment of workers, more employment outside agriculture, and a drop in the level of informality.

Industrial and service employment is mainly concentrated in the big cities and in a number of fast-growing medium-sized cities, the so-called Anatolian tigers. The latter created many new jobs outside agriculture for the low-skilled segment. The OECD (2012) states that, starting from 2007 their employment rate improved; and in 2011, workers with primary education or less represented 55% of the total workers employed in Turkey.

Our findings are in line with those of Gürsel and Soybilgen (2013). They use quarterly data within a similar framework to reveal productivity dominating the per capita income growth before the global crisis, employment being the driving force since then. Now we are interested to see whether the other OECD countries show such pattern changes (in terms of the dominant factor of growth).

3.3 A Comparison within the OECD

We repeat the accounting exercise for all the other OECD countries and determine the contributions of different factors during 2004-12. Data for GDP (in constant local currency) are from the World Development Indicators Database. Data for population, working-age population (15-64), and civilian employment are from the OECD Annual Labor-Force Statistics Summary Tables (OECD, 2013b). Table 2 indicates that output per worker was the leading component of per capita income growth in Canada, the Czech Republic, Denmark, Estonia, Finland, France, Korea, the Netherlands, Portugal, Slovakia, Slovenia, the United Kingdom, and the United States before and after the crisis. On the other hand, in Australia, Austria, Belgium, Ireland, Japan, New Zealand, Norway, Poland, Spain, and Sweden, employment activity pushed up per capita income more than any other factor before the global crisis; however, productivity increments fueled the advance in per capita income after the global crisis. Thus, these countries represent the reverse cases of Turkey's experience, which we describe in Section 3.2.

Within the OECD, Greece registered the lowest average annual GDP growth rate (measured in constant local currency) and the worst average annual growth of PPP-adjusted GDP per capita over the 2004-12 period. Within that period, we see that rising output per worker accounted for 68.7% of the per capita GDP growth in Greece during 2004-07, while the corresponding figure was only 7.1% between 2009 and 2012. Declines in the employment-to-working-age Greek population ratio are primarily responsible for the significant drop in per capita income during 2009-12, accounting for 80.6% of that painful economic contraction.

3.4 A Convergence Exercise

Here, we are interested in the question of what explains the convergence experience of Turkey (relative to the US) during 2004-12 as displayed in Panel (a) in Figure 2. Following Equation (1), we see that the relative GDP per

Table 2. Sources of growth in OECD countries (average annual changes, %)

		Contribution to output per capita of					*Contribution to output per capita of*					*Contribution to output per capita of*		
Country/Period	*Y/P*	*Y/L*	*L/WP*	*WP/P*	*Country/Period*	*Y/P*	*Y/L*	*L/WP*	*WP/P*	*Country/Period*	*Y/P*	*Y/L*	*L/WP*	*WP/P*
Australia					Greece					New Zealand				
2004-2007	*1.82*	*0.36*	*1.36*	*0.10*	2004-2007	3.30	2.27	1.26	-0.22	2004-2007	1.68	0.42	1.14	0.12
2007-2009	*0.63*	*0.92*	*-0.34*	*0.06*	2007-2009	-2.10	-1.83	-0.07	-0.20	2007-2009	-1.17	0.09	-1.27	0.01
2009-2012	*1.05*	*0.97*	*0.37*	*-0.29*	2009-2012	-5.78	-0.41	-4.65	-0.71	2009-2012	0.93	1.03	0.14	-0.24
Austria					Hungary					Norway				
2004-2007	*2.68*	*0.76*	*2.20*	*-0.27*	2004-2007	2.78	2.32	0.39	0.07	2004-2007	1.64	0.06	1.25	0.33
2007-2009	*-1.62*	*-1.82*	*0.18*	*0.02*	2007-2009	-2.91	-1.30	-1.52	-0.10	2007-2009	-2.05	-2.09	-0.08	0.12
2009-2012	*1.55*	*0.91*	*0.61*	*0.02*	2009-2012	0.72	-0.60	1.41	-0.10	2009-2012	0.27	0.37	0.02	-0.12
Belgium					Iceland					Poland				
2004-2007	*1.76*	*0.51*	*1.04*	*0.20*	2004-2007	3.72	1.57	1.36	0.79	2004-2007	5.44	2.06	2.93	0.45
2007-2009	*-1.73*	*-1.39*	*-0.34*	*0.0004*	2007-2009	-4.05	-0.05	-3.97	-0.03	2007-2009	3.24	1.28	1.73	0.24
2009-2012	*0.30*	*0.54*	*-0.01*	*-0.23*	2009-2012	-0.20	-0.35	0.57	-0.43	2009-2012	3.05	3.97	-0.75	-0.17
Canada					Ireland					Portugal				
2004-2007	*1.63*	*0.84*	*0.57*	*0.22*	2004-2007	2.74	0.60	1.67	0.47	2004-2007	1.33	1.20	0.23	-0.11
2007-2009	*-2.26*	*-1.08*	*-1.16*	*-0.02*	2007-2009	-6.10	-0.46	-5.15	-0.49	2007-2009	-1.60	-0.40	-1.05	-0.15
2009-2012	*1.33*	*1.10*	*0.49*	*-0.27*	2009-2012	0.06	2.85	-1.80	-1.00	2009-2012	-0.70	2.05	-2.46	-0.29
Chile					Israel					Slovak Republic				
2004-2007	3.89	0.52	2.85	0.51	2004-2007	3.88	1.95	1.88	0.05	2004-2007	8.13	5.39	2.33	0.41
2007-2009	0.11	-0.0004	-0.33	0.44	2007-2009	0.72	0.10	0.21	0.40	2007-2009	0.16	0.09	-0.08	0.15
2009-2011	4.71	-0.34	4.82	0.23	2009-2012	2.59	-1.16	4.15	-0.41	2009-2012	2.82	3.47	-0.45	-0.20
Czech Republic					Italy					Slovenia				
2004-2007	5.92	4.74	1.05	0.13	2004-2007	0.83	0.37	0.82	-0.36	2004-2007	5.05	4.06	1.13	-0.14
2007-2009	-1.59	-0.90	-0.38	-0.31	2007-2009	-4.14	-2.98	-0.98	-0.19	2007-2009	-2.97	-2.18	-0.41	-0.38
2009-2012	1.02	1.40	0.59	-0.97	2009-2012	-0.55	0.08	0.56	-1.19	2009-2012	-0.38	1.84	-1.81	-0.41
Denmark					Japan					Spain				
2004-2007	2.09	1.70	0.49	-0.10	2004-2007	1.69	1.20	1.33	-0.84	2004-2007	1.98	-0.53	2.44	0.07
2007-2009	-3.87	-2.71	-0.92	-0.23	2007-2009	-3.26	-2.48	0.04	-0.82	2007-2009	-2.67	2.30	-4.70	-0.27
2009-2012	0.28	1.69	-0.97	-0.44	2009-2012	1.97	2.20	0.31	-0.54	2009-2012	-0.77	2.35	-2.51	-0.61
Estonia					Korea					Sweden				
2004-2007	8.78	5.27	3.61	-0.09	2004-2007	4.25	3.37	0.68	0.21	2004-2007	2.96	1.03	1.64	0.29
2007-2009	-9.58	-4.99	-4.38	-0.20	2007-2009	0.70	1.14	-0.76	0.32	2007-2009	-3.70	-2.42	-1.10	-0.18
2009-2012	5.40	3.58	2.33	-0.51	2009-2012	3.37	2.30	0.83	0.24	2009-2012	2.61	2.24	0.99	-0.62
Finland					Luxembourg					Switzerland				
2004-2007	3.74	2.37	1.47	-0.10	2004-2007	3.88	1.73	1.94	0.22	2004-2007	2.65	1.60	0.95	0.11
2007-2009	-4.79	-3.62	-1.10	-0.06	2007-2009	-5.05	-6.03	0.65	0.33	2007-2009	-1.17	-1.33	0.17	-0.01
2009-2012	1.26	1.38	0.56	-0.68	2009-2012	-0.56	-0.82	-0.12	0.38	2009-2012	0.84	0.43	0.56	-0.16
France					Mexico					United Kingdom				
2004-2007	1.50	1.16	0.30	0.04	2004-2007	1.53	1.76	-0.32	0.09	2004-2007	2.47	2.20	-0.03	0.31
2007-2009	-2.16	-1.33	-0.64	-0.19	2007-2009	-3.09	-2.29	-1.34	0.55	2007-2009	-3.69	-2.52	-0.99	-0.19
2009-2012	0.77	0.90	0.29	-0.43	2009-2012	2.97	-0.12	2.60	0.49	2009-2012	-0.48	0.31	-0.24	-0.55
Germany					Netherlands					United States				
2004-2007	2.61	0.55	2.10	-0.04	2004-2007	2.87	1.61	1.33	-0.07	2004-2007	1.62	0.98	0.46	0.19
2007-2009	-1.89	-2.78	1.09	-0.20	2007-2009	-1.43	-1.75	0.49	-0.16	2007-2009	-2.48	0.59	-2.97	-0.09
2009-2012	2.63	1.26	1.34	0.03	2009-2012	-0.05	1.07	-0.65	-0.47	2009-2012	1.58	1.74	0.04	-0.20

Source: World Development Indicators Database, OECD Annual Labor-Force Statistics Summary Tables, Authors' calculations. Note: The end year for Chile is 2011.

capita for Turkey and the US depends on the ratio of the three factors at time t:[11]

$$\frac{(Y/P)_t^{Turkey}}{(Y/P)_t^{US}} = \frac{(Y/L)_t^{Turkey}}{(Y/L)_t^{US}} \text{ x } \frac{(L/WP)_t^{Turkey}}{(L/WP)_t^{US}} \text{ x } \frac{(WP/P)_t^{Turkey}}{(WP/P)_t^{US}} \quad (3)$$

We use Equation (3) to see which of these three measurable components of data explains the evolution of GDP per capita in Turkey relative to the US. Table 3 reports real GDP per capita, real GDP per worker, the ratio of employment to the working-age population, and the ratio of the working-age population to the total population in Turkey relative to the US during 2004-12.[12]

Table 3. Sources of the convergence: Indicators relative to the US

Year	*Y / P*	*Y / L*	*L / WP*	*WP / P*
2004	0.26	0.42	0.66	0.94
2005	0.27	0.44	0.66	0.94
2006	0.28	0.46	0.66	0.94
2007	0.29	0.47	0.66	0.94
2008	0.29	0.46	0.67	0.95
2009	0.29	0.43	0.69	0.95
2010	0.31	0.43	0.74	0.96
2011	0.32	0.44	0.77	0.96
2012	0.32	0.43	0.77	0.96

Source: Economic Report of the President (2013), World Development Indicators Database, TurkStat, Authors' calculations.

In 2004, GDP per capita in Turkey relative to that of the US was around 26%. By 2012, Turkish relative GDP per capita had increased to around 32%. Output per worker had gone up both in Turkey and the US, with a relative factor of 0.43 in 2012, which is almost identical to that observed in 2004 (0.42). Similarly, the ratio of the working-age population to the total population escalated both in Turkey and the US, with a relative factor of 0.96 in 2012. This also approximates what was observed in 2004 (namely, 0.94).

Table 3 makes clear that the source of the convergence during 2004-07 was aggregate labor productivity. Later, however, during the global crisis of

[11] See Bello et al. (2011) for a similar decomposition for the growth experience of Venezuela.

[12] Data for the US are from the Economic Report of the President (2013), which are available at: http://www.gpo.gov/fdsys/pkg/ERP-2013/content-detail.html. Specifically, we use "Table B-34: Population by age group, 1940-2012" and "Table B-35: Civilian population and labor force, 1929-2012" for population and labor-market statistics. To make international comparisons valid, we use GDP at PPP in constant 2005 international dollars from the World Development Indicators database for Turkey and the US.

2007-09, declines in Turkish productivity created obstacles for convergence, despite the relative improvements in the two ratios of employment to working-age population and working-age population to total population. In fact, the average annual "growth" in Turkish labor productivity during 2007-09 was -3.37%. On the other hand, the corresponding figure for the US was 0.40% for the same period.[13] Finally, the source of the 2009-12 convergence was the positive movement in the employment-to-working-age population ratio in Turkey (and the fall of this ratio in the US). The Turkish ratio inched upward, from 0.41 in 2004 to 0.45 in 2012, while the American one slipped from 0.62 in 2004 to 0.59 in 2012.

4. Digging Deep into Productivity Gains

Here we investigate the components of the first term of the right-hand side of Equation (1), which is output per worker ($y \equiv Y / L$). Output per worker as a particular measure of productivity confounds the effects of capital accumulation and technological progress, both of which can raise output per worker. To see this, we consider the following aggregate production function:

$$Y = AK^{\alpha}(Lh)^{1-\alpha}, \quad (4)$$

where Y represents real gross domestic product (GDP), K is real physical capital, and Lh is the quality-adjusted workforce, namely the number of workers L multiplied by their average human capital h, while α and $(1 - \alpha)$ are the elasticities of output with respect to capital and labor, respectively. The term A represents total factor productivity, or TFP. TFP tells us not just how productive labor is, but how efficiently the economy uses all the factors of production. One can think of the term A as technology broadly construed, so that it also captures the nature of economic institutions critical to production. In per-worker terms, the production function can be rewritten as

$$y = Ak^{\alpha}h^{1-\alpha}, \quad (5)$$

where y is the output per worker $y \equiv Y / L$ and k is the capital-labor ratio $k \equiv K / L$. We take logarithms of this expression and decompose the average annual growth rate of output per worker over a number of years, z, (from time t to time $t + z$) as follows:

[13] It is noted that in the downturn of 2008-09, labor productivity actually rose as GDP plummeted in the US. (McGrattan and Prescott, 2012); and the financial crisis of 2008 was followed by sharp contractions in aggregate output and employment and an unusual increase in aggregate TFP in the US (Petrosky-Nadeau, 2013).

$$\frac{\log(y_{t+z})-\log(y_t)}{z}=\frac{\log(A_{t+z})-\log(A_t)}{z}+$$
$$\alpha\frac{\log(k_{t+z})-\log(k_t)}{z}+(1-\alpha)\frac{\log(h_{t+z})-\log(h_t)}{z} \quad (6)$$

The above expression decomposes the changes in output per worker into those stemming from the TFP component, those from the physical capital per worker, and those from the human capital per worker.

4.1 Data for Growth Accounting

Deciding how much of any growth in output per worker is attributable to improvements in TFP and how much to other inputs depends on the ways the input measures are constructed. We use the same data for real GDP (at 1998 prices) and employment presented in Section 3.2. The data for physical capital and human capital are central to this effort. We draw on the capital-services data (at 1998 prices) calculated by Demiroğlu (2012) for the Turkish economy. This series is a capital-services index that summarizes the productive capacity of the capital stock, composed of different types of capital, such as equipment and structures. This index properly weighs the various types of capital in accordance with their marginal product and thereby provides an appropriate measure of physical capital. Demiroğlu (2013) emphasizes the essential need for such an index for Turkish capital input, given that several previous growth-accounting studies of the Turkish economy had failed to take sufficient account of the complex nature of the national capital base.

A proper measure of labor input should account for the variability found in the human capital of the workforce. Human capital is constructed using information on the average number of years of schooling for the population over the age of 15. First, we obtain data of this type from Barro and Lee (2013). Then, we convert these data into human capital following Caselli (2005). Data in Barro and Lee (2013) are constructed at five-year intervals, from 1950 to 2010. We use a linear interpolation method to estimate missing observations, since this method does not create a major problem, given that Caselli (2005) states that the average number of years of schooling moves slowly in the short run.

It is worth noting that Barro and Lee (2013) data are widely used in economic growth and development studies for constructing human capital data,

and their estimates of educational attainment provide a reasonable proxy for the stock of human capital for a broad group of countries.[14,15]

That said, measuring human capital is not an easy task, since a nation's human-capital endowment includes the skills and capacities that reside in people and that are put to productive use (World Economic Forum, 2013). Formal education is not the only dimension of human capital. Human capital also encompasses skills and knowledge acquired by the population through on-the-job training, learning-by-experience, and the general health of the population (including physical capacities, cognitive function, and mental health).

We set the capital income share, $\alpha = 0.5$. In growth-accounting exercises, many studies set $\alpha = 0.33$ following Gollin (2002). This figure basically refers to the estimates for the rich OECD countries. Chen et al. (2010), among many other studies, use 0.5 as the labor share for emerging and developing economies, because capital is relatively scarce in most of them, and thus its return is high. On the other hand, labor is cheap there when compared to the advanced countries, leading to a lower labor share. In addition, recent studies of Turkey have argued that the value of α is around 0.5. In that regard, Altuğ et al. (2008), Ismihan and Metin-Ozcan (2009), and Tiryaki (2011) hold forth on the values of factor income shares in Turkey. Finally, TFP is calculated as the residual.

4.2 Growth-Accounting Results

Table 4 reveals the result of the decomposition presented in Equation (6) for Turkey between 2004 and 2010. Capital deepening was the dominant factor during 2005-07, while TFP growth was the leader in 2004 and 2005 and from 2007 to 2010. The global economic crisis of 2007-09 had a depressive impact on Turkish economic activity; growth accounting indicates that this fall in GDP per worker was due to a slump in TFP. Finally, TFP growth was responsible for the economic expansion seen in 2009 and 2010.

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[14] We also use the education level of the population over the age of 15 for Turkey from the National Education Statistics Database. Differing from the Barro and Lee dataset, this database does not take into consideration the educational years if the degree is not earned. The data are on an annual basis, starting from 2008, and can be reached at http://tuikapp.tuik.gov.tr/adnksdagitapp/adnks.zul?kod=2&dil=2. We compute the average years of schooling using this dataset, and the calculated value for the year 2010 almost coincides with the observation reported in the Barro and Lee dataset.

[15] Most of the research uses the average number of years of schooling in calculating human capital. Alternative proxies for human capital are mainly developed for specific purposes in different studies. For example, İnal and Akçabelen (2013) use secondary and tertiary education separately as proxies for human capital in Turkey so as to distinguish between the adoption of already existing technologies and the development of new ones.

Table 4. Sources of output per worker growth in Turkey (average annual changes, %)

Period	*Output per worker*	*Contribution to output per worker of*		
		Physical capital per worker	*Human capital per worker*	*Total Factor Productivity*
2004-05	5.9	2.4	0.4	3.1
2005-06	4.9	3.2	0.5	1.2
2006-07	3.0	2.8	0.5	-0.3
2007-08	-1.5	2.0	0.5	-4.0
2008-09	-5.3	1.0	0.5	-6.9
2009-10	2.8	-1.3	0.5	3.5

Source: Barro and Lee (2013), Demiroğlu (2012), TurkStat, Ministry of Economy, Authors' calculations.

Atiyas and Bakış (2013) find that TFP growth in the 1990s was very low; by contrast, it vastly improved in the 2000s, increasing to over 3% per annum. They find that, between 2002 and 2010, among the 98 countries for which complete data are available, Turkey ranks seventh in terms of TFP growth, calculated through the Solow residual. Üngör (2013) also claims significant TFP growth in the post-2002 period. Economic reforms and institutional changes in the last decade could have triggered this TFP movement forward. The severity of the 2001 crisis was a turning point, bringing about the introduction of a raft of economic reforms. Their objective was to establish macroeconomic and financial stability and improve the business environment. We do not aim to present a detailed overview of the major macroeconomic developments and reforms in Turkey of the last decade.[16] However, it is important to mention a few.

Among the pivotal institutional and structural reforms that were undertaken in this period were: establishing the independence of the Central Bank of Turkey, introducing a free-floating exchange-rate regime, and formally targeting the inflation rate. Other targets of economic reform were achieving fiscal discipline with the national accounts, streamlining the banking system, ameliorating the investment climate, and attracting more foreign direct investment. A related issue was the proliferation of high-tech activities in the 2000s. Noting that these sectors are more productive than their low-tech

[16] OECD (2006, 2012), Ismihan and Metin-Ozcan (2009), Gürsel (2011), Atiyas (2012), and Aysan et al. (2013) discuss the details of the reforms and their impacts on the economic performance of Turkey.

counterparts, the OECD (2012) reports that the share of medium-to-high-tech sectors in Turkey's total manufacturing exports rocketed from 30% to more than 60% in the 2002-08, period, and their share of total output rose from 23% to 30%.

5. Demographics and Female Labor-Force Participation

Let us now turn to changes in participation rates, with the focus on the rising female participation rates in Turkey. Here we investigate one specific channel, the second term on the right-hand side of Equation (1), which is the ratio of employment to working-age population (*L/WP*). In the wake of the 2008 crisis, Turkey experienced a measurable advance in both employment and labor-force participation. In Section 3.2, we found that the largest factor in per capita income growth was the improving employment-to-working-age population ratio between 2009and 2012. In fact, Turkey's total employment grew at an annual average rate of 3.7% between 2007 and 2012. This figure reflects the creation of over four million new jobs.

Turkish women's major accomplishment since the mid-2000s was upping their presence in the labor force, which coincided with this overall employment surge. For their part, Turkish men retained their rate of participation in the labor force between 2005 and 2011 (panel (c) in Figure 4), whereas the females lifted both their degree of labor-force participation and employment rates, even through the crisis (panel (d) in Figure 4).

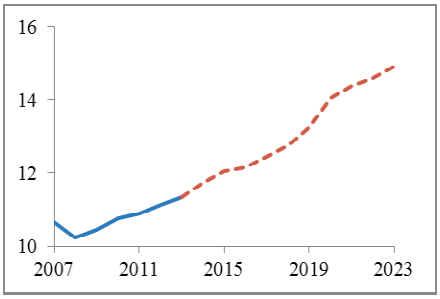
5.1 Demographics and Economic Activity

Recall that Panel (b) in Figure 3 presents the decreasing dependency ratio in Turkey. This ratio has two components: the old-age dependency and the young-age dependency. The first two panels in Figure 4 point to a drop in the dependency ratio, driven by the declines in the proportion of young dependents in the population. A fall in the dependency ratio, especially the young-dependency ratio, is likely to boost female labor-force participation. The uptrend in female participation could mean that workforce growth is outpacing the growth in the working-age population, which would push up GDP per head so long as the extra labor-force participants can find employment (Eastwood and Lipton, 2012).

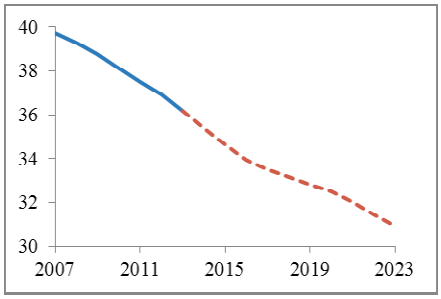
Figure 4 (c)-(d) shows the labor-force participation rates for males and females during 2004-12. Females added to their participation in the workforce, from 23.3% in 2004 to 29.5% in 2012; at the same time, a trend emerged in which many Turkish women were ending up working in the service sector.

Figure 4. Demographics and economic activity in Turkey

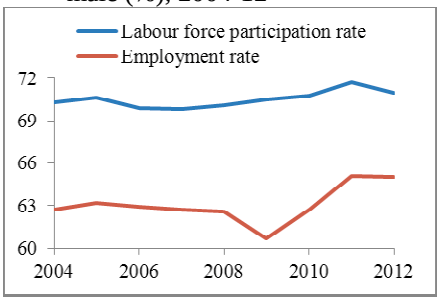
(a): Old-age dependency ratio (%), 2007-23



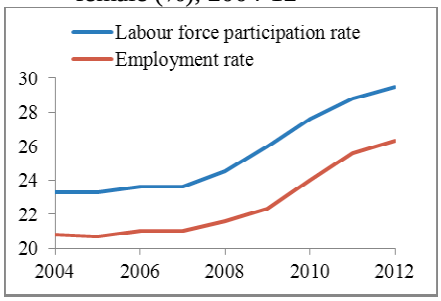
(b): Young-age dependency ratio (%), 2007-23



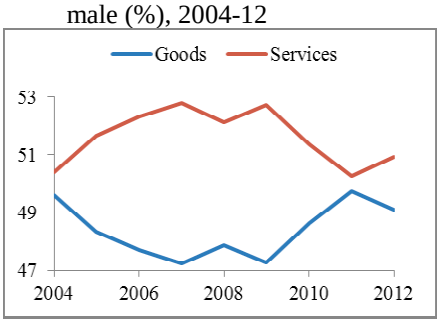
(c): Labor-force status by sex, male (%), 2004-12



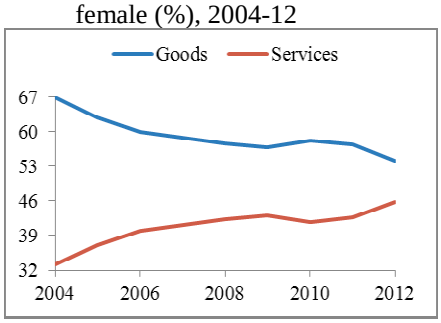
(d): Labor-force status, female (%), 2004-12



(e): Economic activity by sex, male (%), 2004-12



(f): Economic activity by sex, female (%), 2004-12



Source: TurkStat.

In Panel (e)-(f) are the sectoral employment shares for male and female workers in two broad sectors: goods and services.[17] Panel (f) clearly shows

[17] The goods sector includes agriculture, forestry, and fishing; mining and quarrying; manufacturing; electricity, gas, steam, water supply, sewerage, etc.; and construction. The service sector comprises wholesale and retail trade; transportation and storage; accommodation and food-service activities; information and communication; financial and insurance activities;

that women have been moving into the service sector. One explanation for the greater female employment is economic policy. The integration of populations with low rates of participation in the labor market has been one of the more pressing challenges that Turkey has been trying to address for several years. As stated before, Turkey implemented several labor-market policy measures during and right after the 2008 crisis. In particular, starting in July 2008, to provide incentives for employing members of disadvantaged groups, the government offered cost-reducing subsidies targeting women and youth. Balkan et al. (2014) study the impacts of these subsidies on the employment probabilities of the affected demographic groups and find that the females above 30 years of age have experienced a marked boost in their employment probability. The OECD (2013a) comments that these labor-market reforms have greatly diminished the relative labor costs of youth and women.

5.2 Female Employment Intensity

We present a decomposition exercise to demonstrate the gain in female employment and its intensity in the service sector, since is that sector that accounts for more than half of total employment in Turkey. The relationship between the rising prominence of the service sector in the economy and women's involvement in the labor market has been noted by several authors (see, e.g., Olivetti, 2013; Rendall, 2014). Countries that have large service sectors also tend to have more female employment. For example, Rogerson (2005, p.114) finds that the correlation of the change in the relative rate of employment for women with the aggregate service employment rate between 1985 and 2002 is 0.82 for a sample of 20 OECD countries.

Our analysis corroborates that of Ngai and Petrongolo (2014), who established a link between female work and structural transformation (from goods to services). It consists of showing how much of the rise in the female share of total employment took place through the expansion of the service sector. We translate the change in the share of female employment between 2004 and 2012 into two terms, one reflecting the change in the share of services, the other denoting the changes in gender intensities within either sector. The variation in female employment shares between time 0 and time *t* can be expressed as follows:

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real-estate activities; professional, scientific, and technical activities; administrative and support-service activities; public administration and defense; education; human-health and social-work activities; art, entertainment, and recreation; and social, community, and personal-service activities.

$$\frac{L_{ft}}{L_t} - \frac{L_{f0}}{L_0} = \sum\nolimits_j \alpha_{fj}\left(\frac{L_{jt}}{L_t} - \frac{L_{j0}}{L_0}\right) + \sum\nolimits_j \alpha_j\left(\frac{L_{fjt}}{L_{jt}} - \frac{L_{fj0}}{L_{j0}}\right) \quad (7)$$

Structural transformation *Female intensity*

L_m and L_f denote employment by men and women, respectively, and L indicates their sum. L_{fjt} stands for the female employment in sector j at time t. The sectoral employment is given by $L_{jt} = L_{mjt} + L_{fjt}$, , where L_{mjt} represents the male employment in sector j at time t. The first term on the right-hand side of Equation (7) represents the change in the female employment share that is attributable to structural transformation, while the second term reflects changes in the female intensity within the sector. The decomposition weights are:

$$\alpha_{fj} = \left(\frac{L_{fjt}}{L_{jt}} + \frac{L_{fj0}}{L_{j0}}\right)/2, \qquad \alpha_j = \left(\frac{L_{jt}}{L_t} + \frac{L_{j0}}{L_0}\right)/2 \quad (8)$$

The results of this decomposition for Turkey are reported in Table 5 for the 2004-12 period. The first column reports the total change in the female employment share, while the second column gives the proportion of this change that took place between sectors (*structural transformation*); the third column provides the proportion of this change that occurred within sectors (*female intensity*).

Table 5. A decomposition of female employment share

	Contributions from (%)		
Period	*Change in female employment share (%)*	*Structural transformation*	*Female Intensity*
2004-12	3.74	-8.07	108.07

Source: TurkStat, Authors' calculations.

In Table 5, we see that the female employment share moved upward, from 25.71% in 2004 to 29.45% in 2012 (3.74 = 29.45-25.71), all of which was powered by the growing female intensity (accounting for 108.07% of the

change). Sak (2014) argues that the female employment share is increasing due to the spread of shopping malls throughout central Anatolia in recent years. This could be one explanation for the female intensity in services. Our results are in line with a recent study by Gaddis and Klasen (2014), who explore the relationship between structural change as measured by disaggregated growth in employment and women's labor-force participation. For a panel of countries, they find positive effects on female labor-force participation from employment growth in trade, hotels, and restaurants as well as in other services.

Clearly, given that only 30% of Turkish women are currently employed or are looking for work, Turkey has to work hard to expand female participation in the labor force. To convey the growth ramifications of female employment, we quote the following anecdote from Norway, which is the exact opposite of Turkey as far as female employment is concerned. Labor-force participation (especially female employment) in Norway is among the highest in the OECD. The Norwegian Minister of Finance states that "…if the level of female participation in Norway were to be reduced to the OECD average, Norway's net national wealth would, all other factors being equal, fall by a value equivalent to our total petroleum wealth…" (Johnsen, 2012).

6. Concluding Remarks

In this paper, we have applied various decomposition methods to understand the sources of Turkey's growth in per capita income and their relationships with selected demographic factors. Our main findings are (i) the rise in output per worker was responsible for per capita income growth before the global crisis (2004-07); and (ii) the increases in the employment-to-population ratio underlay the per capita income advances after the crisis (between 2009 and 2012). The heightened ratios of both the employment-to-working-age population and the working-age population to total population will continue to make positive contributions to per capita income growth in Turkey if the current trends are sustained.

We have remarked on the link between the growing female employment and its intensity in the service sector. We believe that studying female participation in the workforce is of value. In fact, employment among women will be especially critical in the years to come, as an aging population may place an ever-heavier burden on public finances. The possible consequences of the unprecedented climb in the global population of those over the age of 60 are among the most highly debated topics in academic and policy circles in developed and developing countries alike. TurkStat projects the overall population of Turkey continuing to age: the elderly population, which is defined as

those 65 years of age and over, was 5.7 million in 2012 (with a proportion of 7.5%), and this segment will reach 8.6 million, or 10.2%, by 2023 (see Appendix A.1).

We are fully aware that economic growth is a long-term phenomenon, i.e., it is a long-term expansion of the productive potential of the economy. Simon Kuznets, in his Nobel Prize Lecture, states that "a country's economic growth may be defined as a long-term rise in capacity to supply increasingly diverse economic goods to its population, this growing capacity based on advancing technology and the institutional and ideological adjustments that it demands.[18]" Despite being a short period of time, the years 2004-12 provide an opportunity for further examination of the economic determinants of the growth potential of Turkey; and a systematic analysis of such a high-growth period may offer insightful lessons. One could argue that it is the cyclical factors and measurement issues that dominate any new trend over a short period.

Nevertheless, it is essential to focus on productivity improvements for long-term sustainable growth, since input-driven growth is inevitably limited (Krugman, 1994). In addition, studying selected demographic factors in an emerging country such as Turkey reinforces the work done by others in a range of Asian countries. Indeed, the historic growth "miracles" forged by some of these and the role played by their favorable demographic dynamics in their good fortune have led to demographics becoming more popular among economics researchers (see, e.g., Bloom and Williamson, 1998; Bloom et al., 1999).

We expect our findings to stimulate thought-provoking questions about productivity dynamics and demographic changes in Turkey, in keeping with the recent surge in macroeconomic research into demographic transitions' effect on economic development (see Galor, 2012 and the references therein). In particular, we urge further investigations into the links between demographics and productivity growth that will reveal cross-country productivity patterns, especially in the context of emerging markets (see, e.g, Feyrer, 2007; Ilmakunnas and Miyakoshi, 2013). For instance, what are the key determinants of the processes of demographic changes and technological advances, and how do they interact with each other?

Getting answers to such questions is vital for many developing countries in light of the so-called *middle-income trap* discussions. In that regard, future

[18] http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/1971/kuznets-lecture.html

researchers should to examine the implications of demographic aging (such as increased longevity and reduced fertility) for per capita growth in developing countries in the upcoming decades (see Gonzalez-Eiras and Niepelt, 2012 for such an analysis for the rich OECD countries). Another suggestion for future investigation is to examine the relationship between shifts and variations in the age structure across sectors (see, e.g., Han and Suen, 2011). This may enhance our understanding of the leading role of the service sector in the overall economy. Finally, studying the long-term interaction between demographics and growth, which is related to the second demographic dividend, would be rewarding. In particular, the experiences of the industrialized Asian countries may shed light on the dynamics of this relationship.

Appendix A

A.1. Global Population Aging

Panel (a) in Figure A.1 shows the proportion of elderly population by selected country groups (aged 65 years and over) during 1950-2050.[19] The projections of the United Nations imply that, at the global level, the share of those 65-plus rose from 5.1% of the world population in 1950 to 7.7% in 2010, with the dramatic increase still ahead, as those 65-plus are expected to reach 15.6% by 2050. In other words, in many countries, populations will age at rapid rates over the next few decades.

This demographic transition to an older population has enormous implications for the well-being of future workforces and retirees. Moreover, the demographic developments leading to population aging and the attendant changes in the age composition of the population are likely to distort the time paths of major macroeconomic variables (see, e.g., Kenc and Sayan, 2001).

In Panel (b)-(c), we examine all of the 34 OECD countries (plus Brazil) from the ALFS Summary Tables of the OECD.[20] While aging is global, there are marked international differences in the speed and the extent of the aging process, as shown in Panel (b) and in Panel (c). Panel (b) displays the ratios for Germany, Italy, and Japan. As of 2011, these three countries have had the highest proportions of elderly population in the OECD.

Japan is the most notable case, since the percentage of elderly in its population is not only the highest among the OECD countries, but also the highest in the world. Over 20-plus years, the share of the population aged 65 years or older soared, to 24.1% in 2012 from 12.1% in 1990. The proportion of elderly population is lower in the emerging economies.

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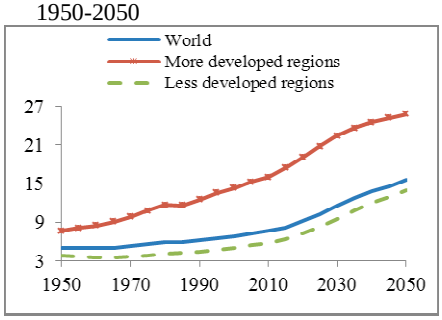
[19] Data are from the United Nations' World Population Prospects (the 2012 revision). We use the table "Percentage total population (both sexes combined) by broad age group, major area, region, and country, 1950-2100," which is available at: http://esa.un.org/unpd/wpp/Excel-Data/population.htm. Data are available for every five years, starting in 1950. We use the projections based on the medium fertility assumption of the database during 2015-50. *More developed regions* comprise Europe, North America, Australia/New Zealand, and Japan. *Less developed regions* comprise all regions of Africa, Asia (except Japan), Latin America, and the Caribbean, plus Melanesia, Micronesia, and Polynesia.

[20] The "ALFS Summary tables" dataset is a subset of the Annual Labor-Force Statistics database, which presents annual labor-force statistics and broad population series for 34 OECD member countries, plus Brazil.

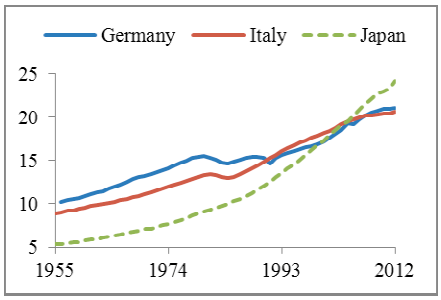
Figure A.1. Population over 65 as percentage of total population

(a): Worldwide accelaration of aging, 1950-2050



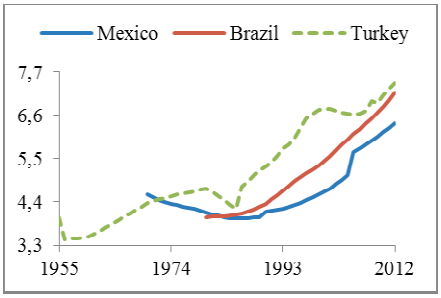
Source: United Nations, World Population Prospects (2012).

(b): The highest ratios in the OECD



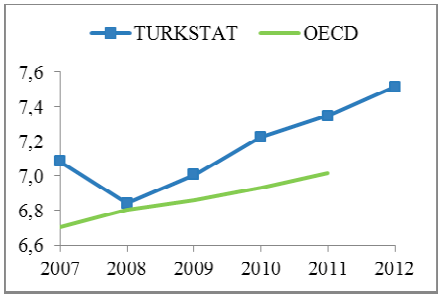
Source: OECD.

(c): The lowest ratios in the OECD



Source: OECD.

(d): Turkey, different datasets



Source: OECD, TurkStat.

Panel (c) presents the ratios for Brazil, Mexico, and Turkey. Among the OECD countries, Mexico and Turkey have the lowest proportions of elderly population as of 2010-11, with Brazil having very similar ratios. Panels (b) and (c) show that aging started earlier in the more developed regions and was beginning to take place in certain developing countries. Panel (d) compares the OECD data for Turkey with the recent updates of the Turkish population statistics based on the ABPRS during 2007-12. We calculate the population over 65 as a percentage of the total population, based on the ABPRS data. These data do not exactly match the OECD data. Nevertheless, the observation for 2012 is 7.5%.

A.2. A GDP Decomposition for the 1988-2003 Period

We repeat our accounting exercise presented in Equation (2) for the 1988-2003 period. We use the GDP (at 1998 prices) from the "Harmonized Gross Domestic Product by TurkStat" table of the Economic and Social Indicators

of the Ministry of Development, which are available at: www.mod.gov.tr/Pages/EconomicandSocialIndicators.aspx. Data for population and employment are from the "Non-institutional population by labor-force status" table of the Statistical Indicators 1923-2012, TurkStat (Table 8.1).

Table A.1 shows the results of the analysis for the period 1988-2003, decomposing GDP per capita growth into the portions associated with the size of the working-age population, the employment rate, and output per worker. During 1988-2003, per capita income grew at 1.59% per year, and output per worker went up by 2.19% per year. The negative contribution of the employment rate suggests that, had it not declined, GDP per capita growth would have been higher during 1988-2003. When the period 1998-2003 was brought under scrutiny, average aggregate employment growth was negative, at -0.6% per year.

Table A.1. Decomposing GDP per capita growth in Turkey (average annual changes, %)

		Contribution to output per capita of		
Period	*Y/P*	*Y/L*	*L/WP*	*WP/P*
1988–93	2.85	3.89	-2.05	1.01
1993–98	1.87	0.42	0.70	0.76
1998–2003	0.04	2.26	-2.57	0.34
1988–2003	**1.59**	**2.19**	**-1.31**	**0.71**

Source: T.R. Ministry of Development *Economic and Social Indicators*, TurkStat *Statistical Indicators 1923-2012*, Authors' calculations.

A.3. On the Effects of the Hours of Work

Here, we consider the possible effects of the hours worked in measuring labor productivity. We break down GDP per capita (Y / P) at time t into four components as follows:

$$(Y / P)_t = (Y / (hours * L))_t \;\; x \;\; (L / WP)_t \;\; x \;\; (WP / P)_t \;\; x \;\; hours_t \qquad (A.1)$$

The only change we introduce is incorporating the hours worked into the analysis. Now, *hours* denotes annual hours worked per worker, and $Y / (hours * L)$ is GDP per total hours. We use the OECD series of average annual hours actually worked per person in total employment for Turkey (OECD, 2013b). As before, we take logarithms and decompose the average annual growth rate of output per worker. Table A.2 provides the results of this decomposition analysis.

Table A.2. Sources of growth in Turkey (average annual changes, %)

		Contribution to output per capita of			
Period	*Y/P*	*Y/(h*L)*	*L/WP*	*WP/P*	*hours*
2004–05	6.80	4.94	0.49	0.43	0.93
2005–06	5.43	4.50	0.09	0.43	0.41
2006–07	3.34	4.74	-0.12	0.43	-1.71
2007–08	-0.53	-0.94	0.63	0.36	-0.58
2008–09	-6.11	-4.33	-1.39	0.62	-1.01
2009–10	7.63	2.97	4.37	0.51	-0.21
2010–11	6.97	2.60	4.51	0.54	-0.68
2011–12	0.53	-0.20	0.82	0.41	-0.49
2004–07	**5.19**	**4.73**	**0.15**	**0.43**	**-0.12**
2007–09	**-3.32**	**-2.64**	**-0.38**	**0.49**	**-0.79**
2009–12	**5.05**	**1.79**	**3.23**	**0.49**	**-0.46**
2004–12	**3.01**	**1.78**	**1.17**	**0.47**	**-0.42**

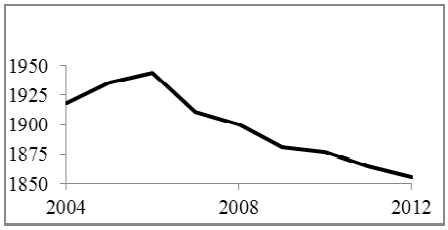
Source: TurkStat, OECD (2013b), Authors' calculations.

Our main finding does not change, and we observe a productivity-based growth era before the global crisis and an employment-based one in the post-crisis period. Notice that the analysis presented in Equation (A.1) above allows us to study the separate margins of work effort. The two principal margins of work effort are hours actually worked by employees (intensive margin) and the fraction of the working-age population that works (extensive margin). Üngör (2014) provides a detailed discussion of the labor supply in Turkey from a macroeconomic perspective. We follow Üngör (2014, Figure 2) and plot the two margins of labor supply in Turkey between 2004 and 2012.

Panel (a) in Figure A.2 shows the behavior of the intensive margin in Turkey between 2004 and 2012. According to the OECD data, an average Turkish worker worked 1,864 hours in 2011 and 1,855 hours in 2012. In a comparative perspective, Üngör (2014) states that Turkey ranked ninth among the OECD countries in 2011—after Mexico, Korea, Chile, Greece, Hungary, Poland, Estonia, and Israel. We note that the data for hours actually worked per person may not be suitable for comparisons across countries, since each country collects its own data, and their methods may not always be perfectly comparable. Panel (b) depicts the time path for the extensive margin. The employment-to-working-age population ratio in Turkey went from 41.2% in 2009 to 45.4% in 2012. Turkey has the lowest employment rate in the OECD.

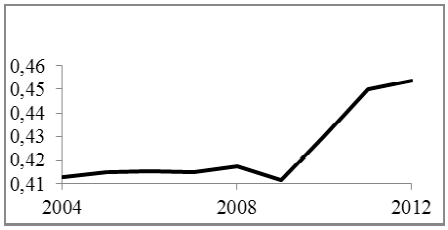
Figure A.2. Two margins of labor supply in Turkey, 2004-12

(a): Intensive margin



Source: OECD (2013b), Üngör (2014).

(b): Extensive margin



Source: TurkStat, Üngör (2014).

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The Work-Life Conflict and Well-Being of Turkish Employees

Cem Başlevent[*]

Abstract

Using data drawn from the 2004 European Social Survey, we examine the determinants of the life satisfaction of employees in Turkey. The data reveal that the majority of Turkish wage and salary earners are either under- or over-employed. About half of Turkish workers have to work longer than they desire, so, unsurprisingly, the share of workers who say they are pleased with their work schedules is only 22%. Gender turns out to be closely linked with the hours-mismatch status, as the level of over-employment is eight percentage points higher among female workers than male. Ordered probit-model estimates reveal that over-employment (measured as the difference in the actual and preferred weekly number of hours) has a negative impact on well-being. We failed to turn up a statistically significant finding for under-employment, which we attribute to the small sample size. We also find no statistically meaningful difference in the impact on male versus female employees of the work-hours mismatch. This suggests that the gender differences that would have been expected in this context are already incorporated into the respondents' subjectively determined desired hours of work. In addition, we find that family-to-work conflict is less common, but has a larger impact on well-being than work-to-family conflict.

JEL codes: C25, I31, J21, J22

Keywords: Life satisfaction, work-life conflict, Turkey, European Social Survey

[*] Istanbul Bilgi University, Santral, Eyüp, 34060 Istanbul, Turkey cbaslevent@bilgi.edu.tr, Tel: +90 212 311 5204

1. Introduction

A widespread concept in the well-being literature is "work-life conflict," which refers to the distress caused by the difficulty in allocating adequate time to the labor market on the one hand and leisure or household activities on the other. A large body of empirical literature provides evidence that deviations of actual hours of work from desired hours are common among the employed in many countries, and that these "work-hours mismatches" are responsible for reductions in the overall life satisfaction of employees (Bell and Freeman, 2001; Böheim and Taylor, 2004; Clark, 2005; Dickens and Lundberg, 1993; Euwals and Van Soest, 1999; Grözinger et al., 2008; Heineck and Möller, 2012; Holly and Mohnen, 2012; Jacobs and Gerson, 2004; Reynolds, 2004; Reynolds and Aletraris, 2006; Stewart and Swaffield, 1997; Stier and Lewin-Epstein, 2003).

The empirical evidence on whether positive or negative deviations from desired hours lead to greater losses in life satisfaction are mixed. Wooden et al. (2009) state that over-employment is a more serious problem than under-employment, but Wunder and Heineck (2013) argue that under-employment causes a stronger reaction in well-being, particularly among males. The explanation Wunder and Heineck offer for this is that under-employed individuals are deprived of the utility gains arising from monetary and non-monetary job aspects, such as the potential for developing skills and the social interaction with colleagues or customers.

Regarding the gender differences in the impact of the work-life conflict on life satisfaction, Başlevent and Kirmanoğlu (2014) report that the life-satisfaction effect of the hours mismatch is the same for male and female workers, i.e., the reduction in life satisfaction for each hour of deviation from desired hours is statistically the same. Since female employees are expected to place more importance on being able to combine work and family responsibilities than males—which is logical because many time-consuming household activities are performed by women—one would initially think that reductions in life satisfaction due to hours mismatches should be greater for females. Başlevent and Kirmanoğlu explain this by showing that the absolute difference between the actual and desired hours of work variables is as an accurate measure of the extent of the work-life conflict, such that any gender differences that exist are captured by this variable.

Using a cross-section of 25 European countries, Boye (2009) focuses on the gender differences in the association between paid and unpaid working hours and well-being. The results indicate that women's well-being increases

with a higher number of paid working hours and decreases with a rise in housework hours. Gender differences in time spent on paid work and housework account for a third of the European gender difference in well-being and are thus one reason that women are found to have lower well-being than men (Frankenhaeuser et al., 1989; Karasek et al., 1987; McDonough and Walters, 2001; Mirowsky and Ross, 1995). These findings are also in line with those obtained elsewhere where housework hours are associated with higher levels of stress among women (Coltrane, 2000; Glass and Fujimoto, 1994; Roxburgh, 2004).

One strand of the well-being literature has focused on whether work-to-family or family-to-work conflicts have more influence on life satisfaction. As explained in Gareis et al. (2009), work-life (or work-family) conflict is a bi-directional term that covers both work-to-family and family-to-work conflict. For example, long work hours may predict work-to-family conflict, whereas heavy elder-care demands may point to family-to-work conflict. Gutek et al. (1991), Frone et al. (1992), and Voydanoff (2005) are among the studies that have shown that each direction of influence can have various antecedents and consequences.

As is clear from the above literature review, the work-life conflict and its implications have been widely studied; however, similar studies on Turkish workers have not been carried out due to the lack of data on actual and preferred hours of work. To the best of our knowledge, the ESS-2004 (to be presented in the next section) is the only survey in which this information is available for Turkish workers, and it has not been applied to the issue of life satisfaction. According to an OECD report, Turkey is by far the country with the highest proportion of employees working very long hours, with almost half of them regularly putting in over 50 hours a week (OECD, 2010). Thus, it is likely that a large proportion of Turkish workers are unhappy about their work hours and that major life-satisfaction effects of over-employment are present.

The purpose of the current study, therefore, is to present the descriptive patterns of the prevalence of over- and under-employment in Turkey and to produce empirical evidence of the impact of these hours mismatches on the life satisfaction of Turkish employees. As in Başlevent and Kirmanoğlu (2014), we observe whether the life-satisfaction effects of over- and under-employment are the same and whether the magnitude of their effect differs for male and female workers. In addition, we make use of the relevant survey items in the European Social Survey to test whether work-to-family or family-to-work conflicts have more of an impact on well-being. Our hope is to be able to complement the empirical findings in the existing literature by using

data for a predominantly Muslim country where the female labor-participation rate is quite low, the labor market is relatively inflexible, and traditional views about the division of labor within the household are still highly common.

2. The Data and Research Methodology

The data used in the empirical study will be drawn from the second round of the European Social Survey (ESS).[1] Turkey is one of the 26 countries that took part in the 2004 survey. The ESS is a cross-country survey conducted biannually since 2002 to monitor attitudes and behaviors across countries and over time. In the main questionnaire, there are several questions whose aim is to measure the life satisfaction of the respondents; there are also questions designed to elicit the respondents' labor-market involvement. The second round of the survey also includes a rotating module titled "Work, Family, and Well-being."[2] The aim of the module is to examine theoretical claims about the factors affecting work, family experience, and well-being in Europe. It inquires about the ideal hours that people would like to work. The exact wording of the survey question is as follows:

> "How many hours a week, if any, would you choose to work, bearing in mind that your earnings would go up or down according to how many hours you work?"

In measuring the extent to which ideal hours deviate from the actual time spent in the labor market, we bring this bit of information together with the response provided to another survey question, worded as follows:

> "Regardless of your basic or contracted hours, how many hours do/did you *normally work* a week (in your main job), including any paid or unpaid overtime?"

In the empirical work, we will first carry out a descriptive analysis in which we will note the mean values of actual and desired weekly hours of work and weekly hours spent on housework. Due to the small number of female respondents in other employment states (i.e. self-employment and unpaid family work), our sample will be restricted to respondents who are currently engaged in paid work as an employee. Students and those with permanent disabilities will likewise be excluded from the sample. We will also include the shares of those doing housework among married and non-married women as well as those with and without children. We will then estimate a

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1 The data set is available at http://ess.nsd.uib.no/ess/round2/.

2 The same module was repeated in the fifth round of the survey in 2010, but Turkey was not among the participating countries.

single equation model that examines whether and how individual characteristics explain the overall life satisfaction of an individual. The responses to the question on overall life satisfaction, which will serve as our measure of well-being and the dependent variable of our model, are given on an 11-point scale, from 0 to 10, with larger values indicating greater satisfaction. The wording of the related survey item is as follows:

> "All things considered, how satisfied are you with your life as a whole nowadays?"

Since the given scores have a clear ordering, the ordered probit model is an appropriate estimation technique to be utilized in this context. Altough probability interpretations are complex, the interpretation of the coefficients on the explanatory variables is the same as in standard regression models: positive coefficients imply a positive association between life satisfaction and the variable in question.

A straightforward way of observing the impact of the hours mismatch, which is a key variable of interest, on life satisfaction is to use a dummy variable that indicates the "matched" respondents whose actual and desired hours are the same. This variable can be interacted with the female dummy to see if any gender differences exist. Another way of measuring the impact of the hours mismatch on life satisfaction is to use an explanatory variable that equals the absolute difference between actual and desired hours of work. However, in order to determine the possible differences between the effects of under- and over-employment, we constructed two separate deviation variables that indicate negative and positive deviations from desired hours. For example, in the case of an over-employed person whose actual weekly hours of work are three hours more than his/her desired hours, the "positive deviation" variable takes on the value of 3 while the "negative deviation" variable takes on the value of zero. In the case of "matched" individuals, both the "positive deviation" and "negative deviation" variables take on the value of zero. These two deviation variables are also interacted with the "female" dummy to see if the life-satisfaction effects of hours mismatches differ by gender.

The two survey items that relate to the respondents' self-evaluation of the amount of their work-to-family or family-to-work conflicts are worded as follows:

> "How often do you..
>
> ..find that your job prevents you from giving the time you want to your partner or family?
>
> ..find it difficult to concentrate on work because of your family responsibilities?

Using these items, we generated two indicators for those whose response to these questions was "never" or "hardly ever." The first one is meant to account for the presence of work-to-family conflict, while the second is expected to reveal the extent to which family-to-work conflict is present. Since these variables are likely to be correlated with the difference between actual and desired hours, we will estimate our model with and without them and see if other patterns emerge.

In building our empirical model, we will rely on the conclusions of existing studies of the relationship between life satisfaction and a wide range of variables. As far as the role of basic demographics is concerned, we control for a U-shaped level of life satisfaction throughout the life cycle. Previously conducted studies report that women have higher life-satisfaction levels than men, as do married people compared to others. Education has also been shown to be an important socio-demographic determinant that is positively associated with life satisfaction. However, this pattern may have more to do with the higher levels of income that usually accompany more schooling. Being in good health and subjective well-being have also been found to be positively and significantly related.[3]

Thus, the individual characteristics controlled for in the model will include the gender and the age of the respondent along with "age squared" to allow for the possibility of a non-linear relationship. Education will be measured using a continuous variable that equals the years of full-time education completed. Economic well-being will be controlled for using a household-income variable measured on a 10-point scale (from 1 to 10), such that larger values correspond to higher incomes. The subjective general health of the respondents will be measured on a scale from 1 to 5, such that larger values indicate better health. The ESS data identify individuals who live with a partner

[3] Empirical studies that report significant associations between these variables and life satisfaction include Albert and Davia (2005), Alesina et al. (2004), Becchetti et al. (2006), Blanchflower and Oswald (2004, 2008), Clark (1997), Clark and Oswald (1994), Cuñado and Pérez de Gracia (2012), Easterlin (1974, 2001), Frey and Stutzer (2002), Hayo (2004), Hooker and Siegler (1993), McBride (2001), Okun et al. (1984), Peck and Merighi (2007), and Yang (2008).

(which includes husbands/wives), which is probably a more relevant indicator than marital status in the European context, but since cohabiting is rare in Turkey, we will use the married vs. non-married distinction.

The survey item we use to control for financial well-being is the respondents' feelings about the income of their household. A categorical variable is derived from the question worded and responded to as follows:

> "Which (is the) closest to how you feel about your household's income nowadays?"
>
> Living comfortably on present income = 1
> Coping on present income = 2
> Finding it difficult on present income = 3
> Finding it very difficult on present income = 4

Our ordered probit model, in which the level of life satisfaction is the dependent variable, is estimated on the pooled sample of male and female workers to ensure that the sample size is not too small to obtain reliable results and also that gender differences can be tested formally. Along with the gender variable, the model includes several interaction terms in order to be able to observe whether there are statistically significant gender differences in how life satisfaction relates to the key factors considered in our analysis.

3. Empirical findings

We begin the presentation of the empirical findings by summarizing the basic patterns of the work-hours mismatch in our sample of employees drawn from the ESS. Unfortunately, we need to work with a relatively small sample of 294 workers, 213 of whom are males. About half of the women in the working sample are married as opposed to 73% of the men. The larger share of married workers among males is consistent with the general pattern of many Turkish women dropping out of the labor force after marriage.

The figures given in Table 1 reveal that the share of matched workers in the full sample is only 22%, while about half the workers are over-employed. Marital status does not appear to have a big impact on the hours-mismatch status, but the share of matched workers in the subsample of single respondents is somewhat larger, at 25%. Gender, on the other hand, has a notable impact on the hours-mismatch status, as the share of over-employment is eight percentage points higher among female workers than men. Also, the share of under-employed women is 11 percentage points lower than the corresponding figure for men. Similar figures are obtained when gender differences are measured among single and married workers separately.

Table 1. Hours-mismatch status by gender and marital status (Sample shares in %)

	Single			Married			All		
	Male	Female	All	Male	Female	All	Male	Female	All
Under-employed	29.3	19.5	25.3	31.0	20.0	28.7	30.5	19.8	27.6
Matched	25.9	24.4	25.3	19.4	22.5	20.0	21.1	23.5	21.8
Over-employed	44.8	56.1	49.5	49.7	57.5	51.3	48.4	56.8	50.7

Calculating the difference between actual and desired weekly hours by hours-mismatch status (see Table 2), we find that desired hours per week exceed actual hours by almost 18 hours among the under-employed, with the difference among the over-employed being just as large. On the whole, weekly actual hours exceed desired hours by 4.1.

Table 2. Average actual and desired hours by hours-mismatch status

	Actual hours per week (A)	Desired hours per week (B)	Difference between A and B
Under-employed	34.2	52.0	-17.8
Matched	45.6	45.6	0
Over-employed	56.6	38.8	17.7
All	48.0	43.9	4.1

The more detailed information on actual and desired hours by gender and marital status presented in Table 3 reveals that there is almost no difference in the actual weekly working hours of single male and female workers. However, married men work five hours more than their female counterparts. Due to the fewer hours that married women would like to work (= 37), the gap between actual and desired hours is wide in their case. However, the gap is even larger among single females, whose desired weekly hours are only 42, as opposed to 47 among single men.

It might be argued that the average of the absolute value of the difference between actual and desired hours is a more informative measure of the hours mismatch, as it ensures that positive and negative deviations do not cancel each other out. It turns out that the absolute difference is quite uniform across genders and marital statuses, with averages of around nine hours. What this result implies is that if the life-satisfaction effect of under-employment is close to that of over-employment, we may not see substantial differences in the satisfaction levels between males and females and between the single and the married. In fact, the average figures reported in the last column of Table 3 reveal that the life satisfaction of males exceeds that of females by 0.2, while

the same difference exists between married and single respondents. Nevertheless, it remains to be seen in the regression context whether the hours mismatches or demographic factors have more to do with life satisfaction.

Table 3. Difference between actual and desired hours by gender and marital status

	Frequency	Actual hours per week (A)	Desired hours per week (B)	Difference between A and B	Absolute difference between A and B	Life satisfaction
Male						
Single	58	49.8	46.6	3.1	8.8	6.2
Married	155	48.1	45.2	3.0	8.9	6.4
All	213	48.6	45.6	3.0	8.9	6.3
Female						
Single	41	49.8	42.3	7.5	9.3	6.0
Married	40	43.2	37.0	6.2	9.1	6.2
All	81	46.5	39.7	6.9	9.2	6.1

Another way of examining the distribution of actual and desired weekly hours in the sample is to make use of histograms that display the amount of dispersion in these variables.

In Figures 1 and 2, where actual and desired weekly hours presented are by gender, we observe that the distribution of both variables is similar in the male and female subsamples. One noteworthy finding here is that about one-third of both male and female workers would like to have a standard 40-hour workweek, whereas only about one-fifth of workers are at the 40-hour mark.

In Figures 3 and 4, where actual and desired weekly hours are presented by gender and marital status, we find that both variables are similarly dispersed in the male and female subsamples. While part-time work is more common among married women than singles, the standard workweek is more often the case among married men. Single men are more likely to have excessive working hours. In terms of desired hours, married male respondents are more likely to desire the standard 40-hour workweek, while singles are more likely to prefer to work longer hours. This is probably because they want to accumulate savings before getting married. Nearly 40% of single women desire the standard 40-hour workweek, whereas part-time work is a more desirable option for married women, as would be expected.

Figure 1. Actual weekly hours by gender

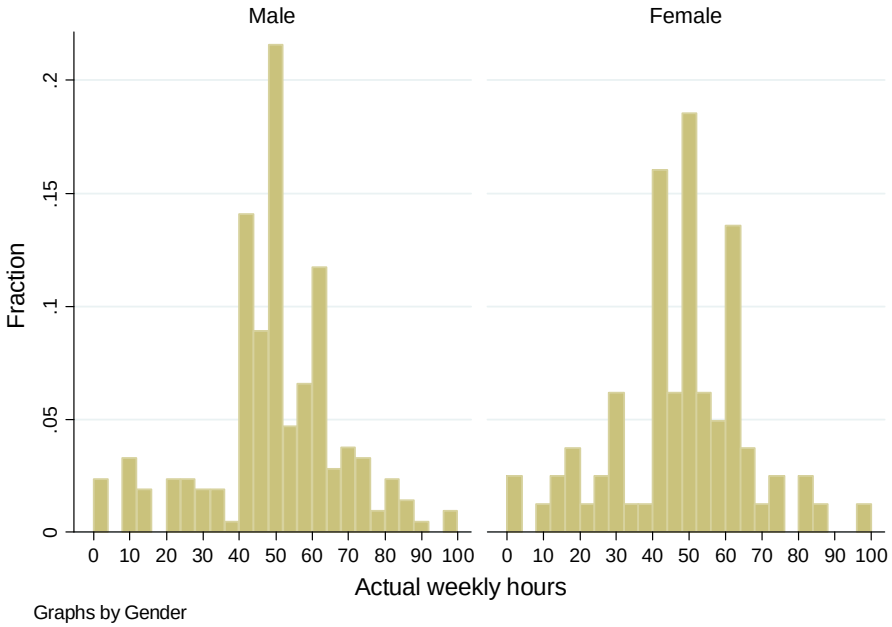

Figure 2. Desired weekly hours by gender

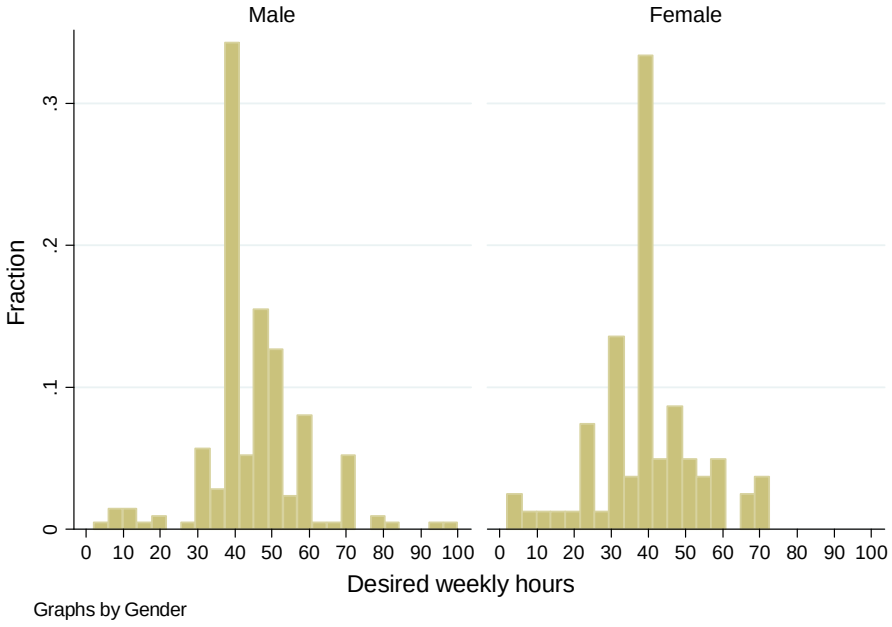

Figure 3. Actual weekly hours by gender and marital status

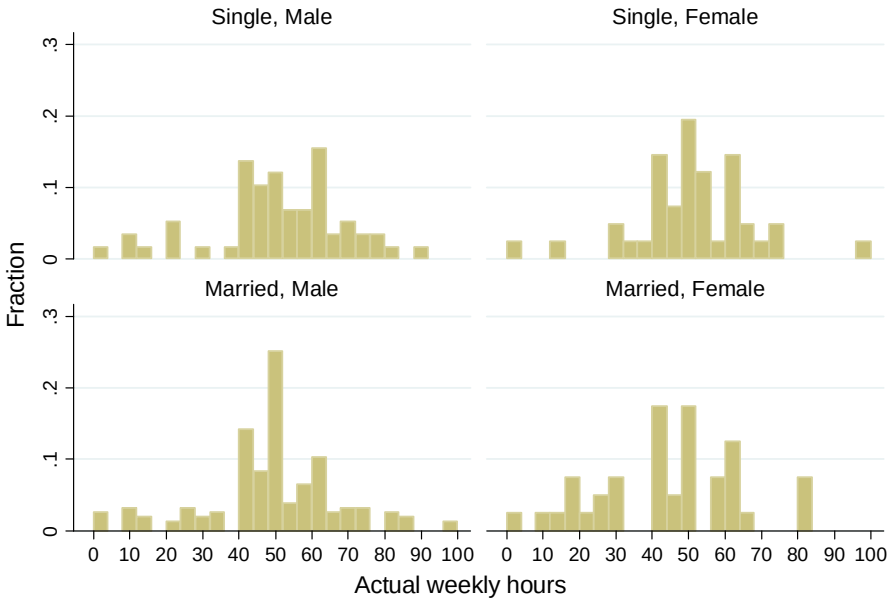

Figure 4. Desired weekly hours by gender and marital status

The figures given in Tables 4a and 4b reveal that marital status does not much influence the prevalence of either work-to-family or family-to-work conflict: about half of both married and single employees never (or hardly ever) experience work-to-family conflict, while the corresponding figure for family-to-work conflict is around 60%.

Gender, on the other hand, greatly affects the distribution of the conflict variables when the sample is broken down by marital status, especially in the case of work-to-family conflict. The share of those never experiencing work-to-family conflict is 20 percentage points higher among single female workers than among single men. Among married workers, however, the figure for females is 20 percentage points lower.

Table 4a. Frequency of work-to-family conflict (sample shares in %)

	Single			Married			All		
	Male	Female	All	Male	Female	All	Male	Female	All
Never	30.2	50.0	39.0	39.5	20.0	35.4	37.4	33.8	36.4
Hardly ever	11.6	8.8	10.4	16.5	17.5	16.7	15.4	13.5	14.9
Sometimes	41.9	23.5	33.8	29.0	32.5	29.7	31.8	28.4	30.9
Often	14.0	8.8	11.7	9.9	20.0	12.0	10.8	14.9	11.9
Always	2.3	8.8	5.2	5.3	10.0	6.3	4.6	9.5	6.0

With respect to family-to-work conflict, the largest differentiation emerges between married males and females: the share of those never experiencing this type of conflict is 18 percentage points lower among female employees. While there are no male workers reporting family-to-work conflict “often,” the share among both single and married women is more than 10%.

Table 4b. Frequency of family-to-work conflict (sample shares in %)

	Single			Married			All		
	Male	Female	All	Male	Female	All	Male	Female	All
Never	47.1	48.2	47.5	48.3	30.0	44.5	48.1	37.3	45.2
Hardly ever	23.5	25.9	24.6	23.2	25.0	23.6	23.2	25.4	23.8
Sometimes	29.4	11.1	21.3	27.8	32.5	28.8	28.1	23.9	27.0
Often	0.0	14.8	6.6	0.0	12.5	2.6	0.0	13.4	3.6
Always	0.0	0.0	0.0	0.7	0.00	0.5	0.5	0.0	0.4

Econometric results

The ordered probit results derived for five different versions of the empirical model are presented in Table 5. In the first specification, labeled with (1) in the table, the potential impact of work-life conflict is accounted for using only the two dummy variables that indicate respondents who claim to be never experiencing work-to-family and family-to-work conflict. In the second specification, the impact of work-life conflict is measured by a dummy variable that indicates respondents whose actual and desired hours are the same. This dummy is also interacted with the female dummy to learn whether gender differences exist. In the third specification, both sets of variables in (1) and (2) are included. In the fourth specification, the impact of work-life conflict is accounted for using two continuous variables that equal the positive/negative deviations of actual hours from desired hours. Once again, both variables are interacted with the female dummy to yield gender differences. Specification (5) includes both the deviation variables and the conflict dummies in (1) and (3).

It turns out that the age, gender, years of education, and marital status of the respondent do not have statistically significant effects on life satisfaction. The self-reported health of the respondent, on the other hand, has a significant positive effect in all versions of the model. The coefficients on the household-income dummies all have the expected negative sign, and they get larger as self-evaluations of the current economic situation of the household become more negative. Of the two dummy variables that indicate respondents who never experience work-to-family and family-to-work conflict, only the latter is found to have a noticeable effect on life satisfaction. Apparently, family responsibilities interfering with one's work are a more important source of distress for labor-market participants than the other way around. Given that the fulfillment of family responsibilities involves interactions with people one has stronger emotional ties with, it is to be expected that excessive amounts of this type of conflict have greater repercussions for life satisfaction.

The dummy variable that indicates respondents whose actual and desired hours are the same has the expected positive sign, but is not statistically significant, regardless of whether the conflict variables are included in the model or not. Of the two continuous variables that measure the positive/negative deviations of actual hours from desired hours, the one representing positive deviations has a statistically significant negative sign, while the negative-deviations variable is statistically insignificant. Also insignificant are the interaction terms that measure the difference between male and female respondents with respect to the effect of the hours mismatch.

Table 5. Ordered probit results

	(1)	(2)	(3)	(4)	(5)
Age	-0.012	-0.009	-0.017	-0.002	-0.009
	0.759	0.817	0.672	0.962	0.820
Age sq.	0.028	0.023	0.033	0.014	0.023
	0.586	0.644	0.522	0.779	0.649
Female	0.097	0.030	0.046	0.113	0.097
	0.485	0.849	0.771	0.546	0.605
Years of education	0.011	0.008	0.009	0.002	0.003
	0.492	0.622	0.585	0.906	0.858
Married	0.047	0.105	0.068	0.091	0.060
	0.777	0.521	0.682	0.581	0.717
Health (1 to 5)	0.242	0.250	0.244	0.246	0.241
	0.012	0.009	0.011	0.011	0.013
Household income	-0.407	-0.312	-0.360	-0.373	-0.422
=2 (coping)	0.056	0.144	0.095	0.080	0.050
Household income	-0.587	-0.469	-0.538	-0.493	-0.567
=3 (difficult)	0.015	0.051	0.027	0.042	0.021
Household income	-0.650	-0.558	-0.592	-0.698	-0.725
=4 (very difficult)	0.037	0.074	0.059	0.028	0.023
Work-to-family (no conflict)	-0.054		-0.056		-0.099
	0.689		0.679		0.468
Family-to-work (no conflict)	0.345		0.328		0.313
	0.013		0.018		0.025
Matched		0.157	0.138		
		0.385	0.447		
Female × Matched		0.247	0.212		
		0.439	0.507		
Positive deviations				-0.012	-0.011
				0.040	0.053
Female ×				-0.004	-0.002
Positive deviations				0.718	0.879
Negative deviations				0.001	0.002
				0.876	0.813
Female ×				0.010	0.012
Negative deviations				0.661	0.612
Pseudo-R2	0.019	0.016	0.020	0.020	0.024

Note: The number of observations is 294. The dependent variable is "overall life satisfaction," with values ranging from zero to 10. The figures in each cell are the coefficients (top) and the *p*-values of the two-sided tests of significance (bottom). The reference category for household income dummies is "Living comfortably on present income (=1)." The threshold estimates have been omitted from the output. The design weights available in the data set have been used to obtain nationally representative figures.

This finding is consistent with that of Başlevent and Kirmanoğlu (2014), who find that the life-satisfaction effect of the hours mismatch is the same for male and female workers. The interpretation of this result is that even though female employees are expected to place more importance on being able to combine work and family responsibilities than males, the absolute difference between the actual and desired hours of work variables serves as an accurate measure of the extent of the work-life conflict, with the result that any gender differences that are present are captured by the deviation variable.[4]

4. Concluding Remarks

Our examination of micro data from the 2004 European Social Survey has revealed that most Turkish wage and salary workers are under- or over-employed. The share of matched workers in the full sample was only 22%, whereas about half the workers had to work longer than they desired. Gender was found to be closely linked with the hours-mismatch status, as the share of over-employment was eight percentage points higher among female workers than male. Marital status, however, did not appear to change the hours-mismatch status—which was somewhat surprising, especially in the case of women. Two factors seem to be contributing to this result: one is that married women have shorter work hours than single women, and the other is that being an "employed and married" woman implies some degree of selectivity for that state.

In view of the possibility of selection bias due to working with a sample of employees only, it might be argued that the econometric models presented here need to involve a selectivity correction to obtain reliable estimates. After all, it is unlikely that employees constitute a random sample with respect to the life-satisfaction effects of hours mismatches. Employees are not only likely to have stronger preferences towards market work, but they are also may be less distressed by the mismatch than the average person in the population. Furthermore, individuals whose desired and actual hours differed in the past by very large amounts will probably have dropped out of employment. However, given the practical difficulties of properly accounting for selectivity bias and the fact that our estimates are meant to hold for actual labor-market participants, we chose not to deal with the selection process into employment.

The key finding of the econometric work was that larger levels of mismatch in the over-employment direction are associated with greater reductions

[4] The patterns observed in the empirical models remain unchanged when estimations are repeated after the exclusion of health and income variables. Similar patterns are also observed when the OLS method is used in place of Ordered Probit.

in life satisfaction. These effects were not substantial, but still statistically significant. The lack of a majorlife-satisfaction effect in the case of under-employment was an unexpected result in light of an earlier finding obtained for a large sample of European countries. Assuming that the main reason given by people for their unhappiness about being under-employed is their inability to make enough money, we postulate that the household-income variables included in the model mediate the relationship between under-employment and life satisfaction. In order to entertain this possibility, we re-estimated the model after excluding the three income dummies. However, the coefficient on negative deviations remained insignificant despite this exclusion. In view of this finding, we conclude that either under-employment does not have a significant life-satisfaction effect in the case of Turkish employees or the small sample size precludes us from observing it.

Our empirical work has provided concrete evidence of the presence of the life-satisfaction effects of excessive working hours. However, data limitations have prevented us from analyzing other possible consequences, such as losses in labor-market productivity, long-term psychological and physiological harm, and even the adverse implications for the quality of child-rearing. Such potential outcomes can be the subject of further research in various fields. In interpreting the results, one should also keep in mind the possibility of the endogeneity of the outcome variable, i.e., that the subjective evaluations utilized as independent variables may have been influenced by the level of overall life satisfaction. It also remains to be seen whether working with larger data sets leads to sharper empirical results that demonstrate the gender differences in this context as well as the differences between married and single employees. Specially designed surveys should be instrumental in dealing with these points as well as examining the life-satisfaction effects of job characteristics other than the work-hours conflict, such as informality, flexibility of weekly hours, and discriminatory or hostile behavior against certain groups.

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