Fiscal Impact of Unrestrictive Immigration: the Case of Israel

Nir Eilam *

Abstract

Israel had admitted more than a million immigrants following the collapse of the Soviet Union in 1990, becoming a country with one the highest shares of foreign-born population (26%). Immigrants' impact on the labor market has garnered most attention, while their fiscal impact has been largely ignored. Using detailed household income and expenditure data I estimate the tax contribution of each household, the benefits it receives and consequently its net fiscal impact. Overall, 100% of government revenues and expenditures are attributed to households, which obviates the need for assumptions pertaining to the differences between natives and immigrants, which are common in the literature. Furthermore, Israel's unique immigration policy, which allows individuals of Jewish origins unrestricted immigration, provides a case study for the potential fiscal impact of a semi-open border policy. I estimate that the net fiscal impact of immigrants is markedly negative. Immigrants received NIS 25.1 Billion (≈$7 Billion) more in benefits than they contributed in taxes and fees; this amounts to approximately 2.9% of GDP, considerably higher than the figures reported in the literature. While immigrants fare considerably worse than natives, the second generation fares much better than natives. The net fiscal impact was driven by significant variation in contributions between the population groups, while the distribution of benefits was much more equal. I also find that immigrants' returns to education are lower, which accentuates the differences between the net fiscal impact of immigrants and natives as the education level increases.

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*University of Texas at Austin; nir.eilam@gmail.com

Introduction

Since its establishment, Israel has admitted more than 3 million immigrants. Most immigrants arrived in two waves of immigration; the first occurred following Israel's independence (1948-1951); the second occurred following the dissolution of the Soviet Union and the collapse of the iron curtain. Between 1989 and 2001, more than a million immigrants were admitted from countries that comprised the Soviet Union. Considering that the population of Israel in 1989 was only 4.56 million, the wave of immigration has expectedly altered the Israeli society. Since 2001, immigration has continued at lesser rates and is expected to continue in the future (CBS 2013l). In 2011, 21% of the population of Israel were foreign born (CBS 2012d); compared to other OECD countries, Israel has the third highest share of foreign-born citizens (of 32 countries) (OECD 2014b). Immigrants are admitted to Israel under the law of "right of return" which permits families with certain Jewish ancestry to immigrate to Israel, without restrictions or quotas, unlike most other western countries.

This study focuses on immigrants from the Former Soviet Union (FSU) that immigrated to Israel after 1990 ("recent immigrants"), but also deals with other immigrant groups. Recent immigrants from the FSU vary from natives in three main aspects - they are older, they have less children and they are more educated, on average, than natives. The differences have implications on the manner in which the immigrants have influenced the Israeli society in general, and its economy in particular. Due to the extent of the recent wave of immigration from the FSU, certain aspects of its impact on the Israeli economy have been extensively studied in the literature. In line with the general literature on the impact of immigration, interest was drawn to the labor market consequences of immigration. Friedberg (2001), Cohen and Hsieh (2001), as well as others, studied the effect of recent immigrants from the FSU on wages, employment, and other labor market variables. However, in contrast with other countries with immigrant populations, and despite the extent of the immigration, no studies examined its fiscal impact.

Literature from countries other than Israel document the public interest in the fiscal impact of immigrants; specifically, concern has been voiced over the perceived over-use of the welfare system by immigrants. The recent economic stagnation in Europe that led to fiscal consolidation has only intensified concerns. A recent Sky News poll conducted in Britain (Sky News 2013) revealed that when asked "what are the two negative contributions made by recent immigrants to the UK?", 40% of respondents replied "drain on the welfare state", more than any other response. "Takes away British Jobs" was only ranked third, with 23% of respondents' replies. When asked to asses the overall impact of immigrants on the economy, 38% of respondents replied that the contribution of immigrants was either "negative" or "very negative". The OECD (2013b) states that "Beliefs about this net fiscal contribution of immigrants – how much they pay in taxes in comparison to what they receive in support – are among the main elements shaping public opinion on migration". It goes on to describe an opinion poll conducted in European countries and in Canada, in which over 50% of respondents believed that immigrants are a "big burden on the public purse" since they contribute less in taxes than the health and welfare services they receive.

Although extensively debated in other countries, and despite the recent influx of immigrants, the issue of the fiscal impact of immigration in Israel was never on the public agenda, nor was the issue of immigration in general (legal immigration). This might stem from the public consensus over the role of Israel as the "homeland of the Jewish people" and its consequent obligation in admitting all Jews who would like to immigrate to Israel, regardless the economic implications. For example, a poll conducted for the Ministry of Immigrant Absorption by Adler (2008) finds that approximately two thirds of natives believe that immigration is essential to the country; other polls reported similar findings (for example, Calcalist 2010). Or, it could stem from the perceived successful integration of recent immigrants, especially several years after immigration. Recent immigrants have successfully obtained positions in government, academia, and sectors that epitomize the Israeli economy, such as the high-tech sector (Leshem 2009). The perceived successful integration might have negated concerns over any possible negative consequences of immigration.

Nonetheless, as in other countries, the topic deserves a methodical examination. Such a large wave of immigration has had an impact on public coffers; the public, as well as policy makers, should acknowledge the fiscal implications of allowing unrestrictive immigration, which could only be accomplished by exhaustively studying the issue. The quantification of the impact and the mechanisms that influence it could galvanize immigration policy that is beneficial to the fiscal system, which has been under stress recently. Moreover, once the factors that affect the fiscal impact of immigrants, as well as their scale, are established, the policies towards immigrants that are already residing in Israel could be altered in light of the findings. Beside the implications for policy in Israel, additional motivation lies in the attempt of improving the research methodology prevalent in the literature. The wealth of data that exists for Israel helps provide a broad comprehensive analysis that is richer than analyses made for other countries. I refrain from many of the assumptions used in the literature that undermine any findings, instead trying to substantiate the methods used with data, not speculations; this buttresses the study's conclusions. Moreover, I study not only the fiscal implication of immigrants, but of their descendants as well (i.e., the second generation), which is important since not only immigrants are admitted, but also any current or future descendants who will have a fiscal impact on the country in the future; this was studied by only one other author (Clune 1998), thus is lacking in the literature.

The fiscal impact of immigrants has been studied rigorously since the mid 1990's, beginning with the work of Clune (1998) on the fiscal impact of immigrant in California. In general, studies on this subject apply either a static framework or a dynamic framework. A static framework involves the estimation of the fiscal impact of immigrants in a given year. For this type of studies the following exercise is performed; first, the contributions to the government coffers of each immigrant individual or household (household for the sake of the discussion) are estimated; these include the direct taxes that the household pays on its labor, capital and other income sources, the indirect taxes that the household pays on its consumption, the fees that the household pays, as well as revenues that do not stem directly from households (such as the taxes paid by corporations), but could be attributed to households under certain assumptions. Second, the benefits that each household receives from the government are estimated; these include government transfers (allowances) and the households' use of government services (education, healthcare, etc.). The net fiscal impact is then quantified as the difference

between the contributions of the households and the benefits that it receives. This type of studies suffer of a few shortcomings. Mainly, the fact that they do not take into account the lifecycle of immigrants; for example, immigrants that are children in the study, thus, likely produce a negative fiscal impact, will eventually begin working and might produce a positive fiscal impact at the end, but this will not be taken into account. In addition, as will be described below, these studies tend to ignore several government revenues and benefits, whose inclusion might alter the results. Moreover, they often rely on unreasonable assumptions in estimating household contributions and benefits.

The studies that apply a dynamic framework try to address the lifecycle problem, by estimating the net fiscal impact of immigrants over their entire lifetime, as well as their descendants' net fiscal impact, rather than in a single point in time. The method involves the estimation of the net fiscal impact of immigrants in one year, and then extending it into the future. In effect, the net present value of an immigrant is estimated. Unfortunately, the projections into the future involve numerous assumptions regarding the future age profile of immigrants, future government expenditures , future government deficit, etc. The results of these studies, thus rely on various uncertain assumptions, undermining any subsequent findings.

The earlier studies on the issue were limited in scope, mainly because they focused on only some contributions and benefits, while ignoring others; the exclusion of certain contributions and benefits might undermined any conclusions made, since the excluded items could have altered the results. Later studies were more comprehensive in trying to include most contributions and benefits, as well as attributing them to households more sensibly using fewer assumptions. The results vary widely between countries, and some studies even reach different conclusions for the same country. Nonetheless, all studies agree on two findings; first, that the fiscal impact of immigrants has been fairly small, whether it be negative or positive; second, that the fiscal impact of immigrants is greatly affected by the demographic and economic profile of the immigrants (age, ethnicity, entry cohort, etc.).

The three most comprehensive static studies, and those that serve as the basis for this study, were conducted by Clune (1998), Dustmann and Frattini (2013) and the OECD (2013a). The studies are comprehensive, in the sense that they try to attribute most government revenues and expenditures to households. Clune (1998), who studied the fiscal impact of immigrants in California found that, on average, immigrants are a net burden on the fiscal system, as they take up in service more than they contribute in taxes; second generation immigration fare better, but are still a net burden. The results vary with the ethnicity and age of immigrants. The results are driven by three factors – immigrants have lower income, thus contribute less taxes; because they earn less, their participation in social service programs for the poor are greater, thus they receive more benefits; third, immigrants were found to have more children, thus receive education benefits in higher shares. Dustmann and Frattini (2013) reach mixed conclusions for the UK. The authors find that over the 1995-2011 period, immigrants from European countries have had a negative fiscal impact, while immigrants from non-European countries have had a negative fiscal impact. Over the recent period (2001-2011), both groups have had a positive fiscal impact, with European immigrants contributing a markedly 34% more than they received in benefits. The OECD (2013a) study conducted a broad examination of the fiscal impact of

immigrants in 26 OECD countries. The authors find that on average (across the OECD), the net fiscal impact of immigrants is close to zero; i.e. they provide neither a negative nor a positive fiscal impact. The authors also conclude that the immigration policy of OECD countries in the last two decades, which favored skilled immigrants, likely resulted in recent immigrants who are net contributors. The cross-country differences in the fiscal impacts of immigrants were mainly explained by differences in the age profiles of immigrants in each country. Immigrants that arrive sooner have more working years, in which their net fiscal impact is likely better. Less comprehensive studies have been conducted for many other countries, as detailed in the literature review, but due to poor design, their findings are questionable.

This study applies a similar static approach, utilizing data from household Income and Expenditure Surveys conducted by the Israeli Central Bureau of Statistics (CBS). First, I classify households according to the nativity of the head of household. Households are classified into two categories pertaining to the immigration status of the head of the household (immigrant or native); immigrant households are further classified into categories pertaining to the immigration year of the head of household (before or after 1990) and the birth country of the head of household (FSU or other). In addition, households in which the father of the head of household was born in the FSU are categorized as second generation households. Overall, 38.5% of households are classified as immigrant households of all sorts. On average, immigrant households are older and contain less children than native households (except for recent immigrants from countries other than the FSU). Immigrant households also earn less, on average, (except early immigrant households from the FSU) than native households, thus, consume less. These have a bearing on their fiscal impact.

I then attribute government revenues to households. I attempt at estimating the contribution that each household made under each government revenue item (income tax, value added tax, excise tax, etc.). Some contributions are specifically detailed in the Income and Expenditure surveys, such as the income tax payments of each household, while other tax contributions of households have to be indirectly estimated. These include all indirect taxes. For these, I estimate the contribution of each household according to its consumption of the relevant taxed item, as detailed in the Expenditure Survey (for example, when attributing tobacco excise tax revenues to households, I use each household's expenditure on tobacco products as proxy of their respective tax contributions). Taxes that are borne on tourists, foreigners and businesses (such as corporate income tax) are hardest to attribute to households, since no clear attribution method exists. Thus, for these, several attribution scenarios prevalent in the literature are examined. Government expenditures are similarly attributed to households. I attempt at estimating the public benefits that each household receives. Some benefits are easier to attribute, such as government transfers, since these are detailed in household surveys, while the household receipts of other benefits (such as healthcare, education, police, etc.) have to be approximated using indirect data from households surveys (for example, education costs are attributed to households according to the number of children in the household). Several public services, such as national defense, are attributed equally to households, since they benefit the entire population rather fairly.

I then estimate the net fiscal impact of each household, quantified as the contribution of each household minus the public benefits that it received. I find that the net fiscal impact of immigrants is markedly negative; an

average immigrant household receives ₪29,219 annually in benefits more that it contributes in taxes and fees. Multiplying this figure by the number of immigrant households results in an annual negative fiscal impact of ₪25,063 million (2.9% of GDP). Conversely, the net fiscal impact of natives are positive; an average native household contributes ₪18,728 more in taxes and fees, than it receives in benefits. I find that recent immigrants fare the worst, partly explained by their lower education level compared to earlier immigrants, which affects their earnings, despite the fact that they are younger, on average, then earlier immigrants. Overall, recent immigrants from countries other than the FSU fared the worst with a negative average annual net fiscal impact of -₪52,114. Second generation of immigrants from the FSU fared the best, even better than other natives, with a net fiscal impact of ₪28,762. I find that the net fiscal impacts are driven by the contributions of households, rather than the benefits that they receive; while benefits are distributed rather equally amongst households, with somewhat higher benefits granted to households with a large number of children, and more older persons, the contributions vary widely between households. The groups that contributes the most (second generation and other natives), contribute approximately 80% more than the groups that contribute the least (recent immigrants from the FSU and other countries). The variation in contributions somewhat corresponds with the variation in earnings with the regressive tax system, which taxes only medium and high incomes, accentuating the differences. Not only labor income is responsible for the differences, but also capital income which is disproportionally owned by households in higher income deciles, who are mostly natives. The differences in direct tax contributions are starker between households than differences in indirect (consumption) tax contributions, since low-earning households consume a larger share of their income, sometimes beyond their means. I then examine the net fiscal impact of households contingent on three factors - the age of the head of household, the education level of the age of household and the length of time since the immigration of the head of household. With respect to age, the net fiscal impact of working age households are highest (mostly positive), while the net fiscal of young (17-25), as well as old (71+) households, are lowest (mostly negative), due to low contributions and high benefits receipts during these phases. Education level and length of time since immigration were found to be positively correlated with the net fiscal impact of households. Immigrants were to found to enjoy lower returns to education; the higher the education level, the higher the differences between the net fiscal impact of immigrants and those of natives. It was also found that on average, only the admittance of immigrants younger than 37 could have produced a positive net fiscal impact under certain conditions. Admitting older immigrants probably produced considerable negative fiscal impact.

The study suffers from the drawbacks that other static studies suffer from. It only provides the net fiscal impact of immigrants in a single point in time; it does not take into account the future net fiscal impact of current immigrants, which might alter the results. Immigrants that are currently net burdens might be a net contributors in the future, and if not them, perhaps their descendants. Other effects that immigrants have on the Israeli economy are also ignored, such as their effect on the labor market. In addition, despite the use of less assumptions compared with other studies, still numerous assumptions were made in attributing revenues and contributions to households.

The study proceeds as follows; the first section provides a literature review that chronologically examines the advancement of the literature on the fiscal impact of immigrants. The second section delineates on how households were classified, and what considerations were involved; it also includes a description of the data sources used throughout the study. The third section describes the socio-economic and demographic characteristic of the population groups examined; these are important in understanding the factors that influence the fiscal impact of households. The fourth section describes how the contributions of households were estimated for every tax or fee item. The fifth section describes how the benefits that each households received were estimated for each benefit item, including government transfers. The sixth and seventh sections present the results of the attribution of contributions and benefits to households, respectively. The eight section relates contributions and benefits in estimating the net fiscal impact of immigrants and describe the subsequent net fiscal impact results. The ninth section deals with the effect of the three factors in determining the net fiscal impact of households - age, education and the length of time since immigration. Section ten summarizes and discusses the results.

Literature Review

The main focus of the research on immigration has been on the labor market effects of immigrants; there have been numerous studies on immigrants' effect on wages, employment, and other labor market aspects (for a review, see Borjas 1994 and Friedberg and Hunt 1995). Far few studies have focused on the fiscal effects of immigrants. Earlier studies on the issue were limited in scope as they restricted their examination to the lower levels of government only (i.e. local or state), while neglecting immigrants' use of federal services and contribution to the federal government; or due to their exclusive examination of one side of the equation – for example, immigrants' use the social welfare system, without examining other services used by immigrants (education, healthcare etc.), as well as the other side of the equation – immigrants tax contributions. Nonetheless, in the past two decades, beginning with the work of Clune (1998), researchers begun to examine the issue more comprehensively, rigorously examining most of the services used by immigrants, as well as most of their contributions, while relying on exhaustive micro data, providing a richer analysis of their fiscal impact. Not only did the depths of studies increase, but the research has also grown horizontally, providing further methodologies to examine the fiscal effect of immigrants that deal with the drawbacks of earlier studies.

The earliest studies were conducted by various government agencies at different federal, state and local levels, as described in North and Houston (1976); the Los Angeles County health department estimating the fiscal costs of extending medical care to illegal aliens; the General Accounting Office examining the collection of welfare by illegal aliens in different cities etc. These studies were limited in scope and served the purpose of dealing with a specific administrative need.

Researchers have begun studying the issue critically at a broader level during the 1970's. An early example of such a study would be North and Houston, who in 1976 interviewed around 800 illegal immigrants pertaining to various issues that also included some fiscal issues – what the authors describe as the immigrants' "participation in public programs". These included on the costs side, the immigrants' use of hospitals, public schools, welfare payments, etc. and on the revenues side, whether the immigrants paid their federal taxes, hospitalization bills, etc. The immigrants answered a simple yes/no, so that the study did not quantify any of the fiscal effects. Nonetheless, the authors' data suggest that illegal immigrants' impact on public treasuries is limited. Although the study had severe data limitations, its importance laid in emphasizing the need for further data on this subject. Another study was conducted in a similar fashion by Heer (1990), who interviewed legal and undocumented Mexican immigrants and found that both types of immigrants were mostly less likely to participate in social programs than natives and that legal immigrants were more likely to pay taxes than natives, while undocumented immigrants were less likely to. Because the author didn't quantify any of the results, definite conclusions cannot be drawn.

During the subsequent years, several other studies were conducted. Rothman and Espenshade (1992) provide a review of the data, methodologies and results of earlier studies conducted up until the beginning of the 1990's. Of the 17 studies reviewed, only 6 deal with the fiscal impacts of immigrants at the national level, while the others limit their focus to state and local levels. Furthermore, of the 6 studies conducted at the national level,

only one (Simon 1981) could be considered complete inasmuch as it examines both the cost and revenue sides and quantifies the results. The other five studies either limit their scope to a specific group of immigrants (like North and Houston 1976 and Heer 1990, discussed above, who study illegal immigrants), or only consider the participation of immigrants in social welfare programs (Blau 1984, Tienda and Jensen 1986 and Borjas and Trejo 1991, discussed below), without considering other expenditures or revenues attributed to immigrants, providing a particularly restricted picture.

The first comprehensive study that attempts to quantify the net effect of immigrant households on natives in a rigorous manner is *What Immigrants Take from, and Give to the Public Coffers* (Simon 1981); the study was one of the first to utilize a static accounting model; as mentioned in the introduction, these models examine the fiscal impact of immigrants by estimating immigrants' use of government services, their tax contributions and the net impact, estimated as the difference between the two. The author utilizes 1976 data on the income and use of social services of 158,000 households, of which 15,000 are immigrant households. Immigrant households are divided into entry cohorts according to the year in which they entered the United States (the years 1950 – 1979 are examined). For each entry cohort, the author derives from the data the various social payments that they receive, their use of medical services and their number of children. While the transfer payments' monetary value is specified in the data, for the other two – healthcare and education, the author simply assigns a fixed dollar amount – the average expenditure per student on public schools for each child and the average cost per user of Medicaid or Medicaid for each patient. Additional services such as penitentiaries are mentioned in the study but are not quantified. Overall, the monetary value of the natives' use of social services was higher than for most immigrant cohorts. The overall monetary value of the analyzed services use of natives was approx. $9,300 in 2013 dollars, compared to between approx. $4,900 for the second latest cohort and $9,400 for the earlier cohort of immigrants. Generally, the analysis showed an upward trend in the monetary value of the use of social service with each subsequent cohort – reaching equality with the natives some 10-15 years after arrival.

For the estimation of taxes paid, the author applies a 29% fixed tax rate to each household's income that is assumed to encompass all taxes on income at all levels of government. The mean income of households from the 1974 cohort is 12.5% lower than the mean income of native households. Within 2-6 years after entry, immigrant households already earn as much as native households and later cohorts earn up to 21% more. Consequently, after applying the fixed tax rate on incomes, the latest cohorts pay somewhat less taxes than natives, while earlier cohorts pay more taxes than natives, by the proportion specified.

In gauging the net benefit or burden of immigrant households, the author applied two alternative calculations. For the first alternative, the net effect was calculated as the difference between the fiscal impact of immigrants on public treasuries (their paid taxes minus their use social services) and the fiscal impact of natives. The second alternative takes into account public goods – government expenditures that are invariant to the number of people. The author estimates that these expenditures account for 20% of tax receipts. The author asserts that immigrants are beneficial to natives since each they increase tax receipts that finance public goods without raising their cost, therefore, lowering the average cost of these goods for natives. Both alternatives

yielded positive annual net effects of immigrant households on native households for all entry cohorts. The results suggest that over their lifetime, immigrant households had a significant positive fiscal impact.

Other earlier studies that have been conducted at the national level mostly examine the cost side related to immigrants. For example, Blau (1984) uses the same survey from 1976 to compare welfare and social security transfer to immigrant and native households, but as opposed to Simon, the author does not exclude older immigrant households. The author finds that due to the higher age of family members of immigrant households, the transfer payments that they receive are considerably higher. However, after controlling for age, as well as other factors, results are reversed leading the author to conclude that immigrant households are considerably less likely to receive these payments than native households with the same characteristics, and in case they do, the average payment is only slightly higher than for native households. The regression that the author used also yielded the a few factors contributed to a higher likelihood of receiving welfare, social security or both – households headed by a male over the age of 68 had a higher likelihood of receiving both; deficient English ability increased the likelihood of being on welfare and insignificantly decreased the likelihood of being on social security; another factor that was studied was the length of time that the immigrant head of households resided in the United States. With regard to welfare, no consistent pattern was found, but with regard to social security – the author found that at first, immigrant households are less likely to receive social security, but subsequently, the likelihood increases, until they are more likely to receive social security, after residing between 16 and 26 years in the United States pertaining to men and women, respectively.

Tienda and Jensen (1986) corroborate these findings using the 1980 census that included data on welfare receipts entitled "public assistance income". Similarly to Blau's work, the authors estimated the likelihood that immigrant and native households received public assistance income, but added a facet that was missing from Blau's study – ethnicity. The authors found that as for Asian and Hispanics – immigrants received more public assistance income, while as for Black and Whites – natives received more public assistance income. However, the regression analysis of comparable households revealed that immigrants were actually significantly less likely to receive public assistance income across all ethnicities except for a small specific group of Asian refugees, which were regarded as a "special case".

Numerous other studies that examined the reliance of immigrants on various social programs were conducted for the United States (see Borjas and Trejo 1991) as well as other countries (Maani 1993 for Australia, Baker and Benjamin 1995 for Canada, Hansen and Lofstrom 2003 for Sweden and others). Some find that immigrants are less likely to rely on social programs, while others find the opposite. Even within studies that reach a conclusion, there is variability with regard to the ethnicity, age, entry cohort, and other characteristics of immigrants.

Vernez and McCarthy (1996) provide a review of studies conducted between 1990 and 1996. Of nine studies reviewed, only three provide estimates for the fiscal impact of immigrants on all levels of government (Huddle 1993, Passel 1994 and Center for Immigration Studies 1994). Similar to other earlier studies, these are also limited in scope. The studies rely on numerous assumptions and not on immigrants' actual service use and revenue payments. In attributing the costs of government services, the authors' estimate the average annual

costs of providing the service and divide it by the estimated number of immigrant ad native beneficiaries. This assumes, without substantiation, that the cost per beneficiary are equal, regardless of nativity; the only difference between immigrants and natives is the share who use the service. In attributing the tax contributions, the authors' apply average tax rates (for income, property and other taxes) on the estimated income distribution of immigrants and natives. Again, this assumes that natives and immigrants with the same income level, contribute the same. The results of the studies vary widely, while Huddle (1993) and the Center for Immigration Studies (1994) find that the costs of public services rendered to immigrants is higher than their tax contributions (by a ratio of between 1.3 and 4.05, depending on the legal status of the immigrant), Passel (1994) concludes that all immigrants, except illegal immigrants contribute more than they receive, by a ratio of 1.35 up to 1.99, depending on the legal status of the immigrant. The differences stem from each authors' inclusion of different government services and taxes. This emphasizes the need for unified methodology that includes all government services, as well as all taxes. Nonetheless, the studies agree on the findings that natives contribute more than they receive and that illegal immigrants contribute less than they receive.

There were also studies on immigrants that concentrated on their impact on state and local government, rather than the federal government (For example, Muller et al. 1985 and Romero et al. 1995), The findings of these studies, although practical for state and local governments, could not shed light on the overall picture of whether immigrants are a benefit or a burden, as they exclude from the analysis a significant portion of revenues and expenditures that are attributed to immigrants.

All of the earlier studies lacked the comprehensiveness of some later studies; they examined only a small share of tax contributions received and/or of government services rendered. Mostly, these included only direct taxes, such as income taxes, since these could be estimated straightforwardly, and public services that are rendered to households directly, such as education. The studies excluded from the analysis most indirect taxes, which constitute a high share of total government revenues, and public services that are not rendered to households directly. Because each study included different tax and government service items, the comparability of the results is problematic. Without the examination of the additional tax contributions and government services, no concrete conclusion regarding the net fiscal impact of immigrants could be drawn, since the unexplored tax contributions and government services could flip the conclusions. Another drawback are the numerous assumptions the studies applied in attributing tax contributions and government services costs to households due to the lack of data on actual tax contributions and actual use of public services; most crucially, with respect to government services attribution, is the assumption of equal cost per beneficiary, regardless of the different demographic structure of each population group; with respect to tax contributions attribution, most crucial is the assumption that households with similar income contribute equally in tax revenues, for all tax items. The numerous different assumptions are manifested in the estimated results of these studies with respect to the net fiscal impact of immigrants, which vary greatly. The assumptions could be avoided if the authors' were to use actual use and contribution data.

My study stems from a comprehensive study that was the first that tried to systematically include most revenues and expenditures at all levels of governments (local, state and federal), as opposed to earlier studies,

and attribute them to immigrant and native households. The study was published as part of a report entitled "The New Americans: Economic, Demographic, and Fiscal Effects of Immigration". The report was published by the United States National Research Council after it was asked in 1995 by a congressional commission on immigration reform to convene a panel of experts to assess the demographic, economic and fiscal consequences of immigration. The report outlined how the fiscal impacts of immigrants in a given year should be measured and then implemented the methodology for two case studies – New Jersey and California. While the California study included all levels of governments, the New Jersey study only included the local and state government, so I will focus on the former. In addition, the panel also directed a study on the long-term impacts of immigrants, which will be briefly described below (Smith and Edmonston 1997).

Clune (1998) conducted the study of California. The primary data source for the study was the California sample of the 1995 Current Population Survey (CPS) that included data on major income transfer (social security, welfare, etc.) and noncash benefits (Medicare, food stamps, public housing, etc.) provided by all levels of government.). The authors attempt to be as comprehensive as possible in dealing with most government's revenues and expenditures; the author succeeds in allocating to households 67% of all government revenues and 100% of all government expenditures. Another important feature of the study is the reconciling of tax and benefit estimates to match the actual totals, i.e. multiplying these estimates by the number of households would yield the actual tax and benefits figures, thus, providing more sensible estimates.

As with my study, the study follows a micro-level "bottom-up" approach. For each tax or benefit item, the estimation of the household contribution amount or benefit receipt is enabled by the identification of different relevant household characteristics. For example, in order to estimate each household's sales tax contribution, its income is multiplied by the share of income spent on taxable goods and services (taken from another study) to determine the household's taxable spending. This estimate is then multiplied by the 8% sales tax, which results in the households tax contribution.

The results reveal that native households paid annual taxes and contributions of $26,950 in 2013 dollars while immigrant (first generation) households paid $18,500 (native pay 46% more). Second generation households paid $21,200 and third generation households paid $28,300. Immigrant households are also classed according to region of origin, revealing that Latin American immigrant households paid the lowest amount, while "other" (non Asian, Latin American, Canadian or European) immigrant households paid the highest. The differences between native and immigrant taxes and contributions are due to higher income among native households and higher number of exemptions among immigrant households. Out of 13 tax and contribution items, immigrant households paid a higher amount in only 5 of them ,all of which are a negligible share of government total tax and contributions receipts.

With regard to benefits and services that households receive, native households were found to receive public benefits worth $34,800 in 2013 dollars, while immigrant households received $38,100 in public benefits (natives received 9% less). The benefit categories in which native households received considerably higher amounts were social security and Medicare, while the benefits categories in which immigrant households received considerably higher amounts were Medi-Cal, Aid to Families with Dependent Children, K-12

education and higher education, implying the effect of the age composition of each group on the benefits received.

After taking this into consideration unallocated taxes, the authors conclude that native households are a net benefit for all three levels of governments, while immigrant households are a net burden for all levels of government. The annual net fiscal impact of native households, immigrant households and second generation households was estimated to be $5,500, -$7,400 and -$4,200 respectively (in 2013 dollars). The net fiscal impact varied by ethnicity, with Latin American immigrants having the most negative annual net fiscal impact --$12,500. When categorized by age, the differences between native and immigrant households are most significant for households headed by persons aged 40 – 64; their net fiscal impact was estimated at $19,400 and -$4,050 respectively. For the 65+ group, both natives and immigrant households were estimated to have a substantial negative fiscal impact which was somewhat similar for both groups- -$27,800 and -$29,250 respectively.

The author argues that the results are driven by three factors. First, working-age immigrant households have lower incomes, which result in lower tax contributions. Second, these lower incomes go hand-in-hand with greater participation in social service program for the poor, which raises their estimated benefits receipts. Third, immigrant households have more children, thus, they consume a greater share of education expenditure.

As mentioned above, Garvey and Espenshade (1998) conduct a similar comprehensive analysis for New Jersey without dealing with federal revenues and expenditures, in which they come to similar conclusions – immigrant households pay less taxes and receive greater benefits than native households, although the differences are smaller than in the California study, mainly because differences in income and the number of children between native and immigrant households are smaller.

Another two comprehensive studies whose methodologies are similar to the methodology used in the California and New Jersey studies, as well as my study, are the studies conducted by Dustmann et al. (2010) and Dustmann and Frattini (2013) which estimate the fiscal effects of immigrants who moved to the UK. In both studies, as with the California and New Jersey studies, the authors assign individuals (rather than households), their share of the cost for each government expenditure item, and their contribution to each government revenue item. The 2010 study estimates the fiscal impact of immigrants that moved to the UK from central and east European countries (A8 countries) that joined the EU recently for the years 2006-2011. The authors find that A8 immigrants are younger, more educated and have a higher labor force employment and participation rates than natives. Nonetheless, they receive low wages that are offset, at least partly, by the higher employment rates with regard to tax contributions. Immigrants' receipt of government services and transfers is estimated to be significantly lower than natives', mainly because they are younger, have fewer children, so that overall, immigrants made a considerable positive fiscal effect. The authors' find that even if immigrants' demographic characteristics were similar to natives, they would receive less welfare and social housing. Several scenarios for the attribution of tax contribution are explored, and the conclusions holds for all of them as well as for all years, as the estimated revenues/expenditure ratio for immigrants is far greater than for natives – ranging from 1.21 to 1.68 for immigrants and from 0.8 to 0.9 for natives.

The 2013 study does the same but for all immigrants, not just from A8 countries, which are classed as either coming from European countries or from countries outside Europe; the authors provides estimates for the net fiscal impact of these immigrants for a longer period – every year between 1995 and 2011. As with the 2010 study, the authors find that immigrants' from both European and non-European countries are less likely to receive government transfers and benefits. When controlling for the age structure, European immigrants are still less likely to receive government transfers and benefits, while non-European immigrants are as likely as natives to receive them. When considering the complete picture of immigrants' tax contribution on the one hand, and immigrants' use of government transfers, benefits and services, on the other hand, the authors find that for the whole period between 1995 and 2011, immigrants from European countries contributed 4% more than they received, while natives contributed 7% less than they received; immigrants from non-European countries had a negative fiscal impact, mainly due to their higher number of children, leading to higher education costs. The authors also focus on recent immigrants only (immigrants that arrived after 2001) and find that during the 2001 – 2011 period, both European and non-European immigrants had made a positive fiscal impact, the former having contributed a considerable 34% more than it received and the latter having contributed 2% more than it received.

The authors also emphasize an important aspect concerning the fiscal impact of immigrants that was first explored by Simon (1981). Some public goods (or services), such as national defense, are non-congestible, meaning that the cost of providing these services does not change with the influx of immigrants. In other words, the marginal cost of providing these services to immigrants is zero. When immigrants move to the country, they share the burden of paying for these services, thus, "lifting" some of the weight off the shoulders of natives. In the absence of immigrants, natives would have had to pay for the same services all on their own. The authors try to gauge the reduction in natives' fiscal burden by attributing the full costs of these services to natives in one scenario, while attributing the full costs to the entire population (including immigrants) in an alternative scenario. Because these services account for an appreciable 23% of public expenditure and because of the large immigrant population, the "implicit saving" that the natives enjoy because of immigration is considerable.

A similar study examined the fiscal impact of immigrants in Sweden (Ekberg 1999). The author also attributed most government services and most tax contributions to households and finds that immigrants had a negative net fiscal impact of around 2% of GDP.

Both studies by Dustmann et al. (2010 and 2013) are broad, in a sense that immigrants' fiscal impacts were examined for a long period of time, avoiding any difficulties of gauging the fiscal impact at high or low point on the business cycle; and are, together with the studies by Clune (1998), Garvey and Espenshade (1998) and Ekberg (1999), complete in a sense that both immigrants' contributions and use of services were explored; Nevertheless, the studies suffer from numerous shortcomings. Mainly, these pertain to the assumptions used to attribute tax contributions and government services to households. For many tax items (mainly indirect taxes and taxes not imposed directly on households, such as the corporate income tax), data on the actual contribution of each household was unavailable; for many government services items, data on the actual use of these services by each household was unavailable; therefore, the authors had to make countless assumptions in order to

attribute these tax and service items to households. An example, which is also one of the major drawbacks of these studies is their attribution of value added tax and other excise tax contributions to households; in the 2010 Dustmann and Frattini study, these constitute a significant 28% of government revenues; they include value added tax, fuel taxes, alcohol taxes, vehicle taxes, and other taxes. Dustmann and Frattini attribute the revenues stemming from these taxes to households according to the effective expenditure rates by income decile; i.e. the authors assume that the tax contributions of households are a fixed proportion of their income, with the fixed proportion differing with each decile. This assumes that the share of consumption of all households within each decile is equal; it also assumes that the share of consumption of each differently taxed good is equal for all households within each decile; it ignores differences in consumption by nativity, practically "forcing" similar tax contributions for immigrants and natives with similar income. Clune (1998) also ignores actual consumption while attributing these taxes; for example, with tobacco taxes, the author attribute revenues to households according to the number of adults in each household, which assumes that immigrants and natives similarly consume tobacco products. Ekberg (1999) uses an even simpler assumption in attributing the revenues stemming from all indirect taxes; he assumes that immigrants' share in indirect tax revenues corresponds to their share in labor and capital income. While it is sensible to assume a positive relationship between capital and labor income and indirect tax contributions, assuming a 1 to 1 relationship is not sensible. These examples are just a few of many throughout these studies. The problem with these assumptions that they "force" similar contributions to immigrants and natives, reducing the differences in contribution to variability in income or number of adults between immigrants and natives, whereas the purpose of the study is to examine whether these population contribute differently. In my study, I have managed to avoid some, but not all, of these assumptions due to my use of actual consumption data. Because these studies are closely related to my study, in each section, I point to the drawbacks of these studies, and delineate how the methodology I used overcomes the drawbacks.

Apart from the comprehensive studies conducted in the United States, UK and Sweden, studies have been conducted for other countries with a large immigrant populations, but these studies are largely cursory. For example, Grubel and Gardy (2005) and Grubel and Gardy (2011) find that immigrants to Canada had a negative net fiscal impact, but they rely on unreasonable assumptions and estimations. Following are a few examples; without delineating their choice, the authors' write that because they assume that immigrants had properties that were worth less than natives' properties, immigrants were assumed to pay 60% less in property taxes; because immigrants earned 20% less than natives, the authors' assume that their sales tax contributions are 20% less, because expenditure is directly related to income; with regard to the use of government services, the authors' utilize data on the value of government services granted to households by income decile, and assume that all households within the same income decile receive the same level of overall government services. These type of studies, that do not use actual tax contributions data and government services use data, carry very little value.

The OECD (2013) have conducted a comprehensive study on the fiscal impact of immigrants for most OECD countries. Although the study refrained from allocating many tax and benefit items, attributing only 74% of government revenues and 63% of government expenditures to households, it has the desirable quality of examining the fiscal impact of immigrants for 27 countries using unified methodology that better enables the

comparison between countries, which was lacking in other studies. It must also be noted that the study did not elaborate on the assumptions made to allocate most tax and benefit items; moreover, it seems that for most items that were discussed, the attribution was not on an actual use basis, suffering from many of the faults of the studies discussed above. The study finds a wide variation in the net fiscal impact of immigrants; in 20 countries, the impact was found to be positive, while in the remaining 7 it was found to be zero, or negative. The annual net fiscal impact of an immigrant household was estimated to range between approximately $22,000 (2013 dollars) for Switzerland and approximately -$8,100 for Poland. The authors note that for the major countries, for which the fiscal impact of immigrants was found to be negative (France and Germany), the negative impact stems from the older composition of immigrants. Moreover, age, together with the employment status of immigrants were the most important factors in determining the net fiscal impact of immigrants. Nonetheless, the authors conclude that the net fiscal impact of immigrants tend to be small in most countries.

Apart from the static accounting models mentioned above, other types of models have been studied in trying to gauge the fiscal impact of immigrants. Because this study takes a static accounting approach, these studies will only be discussed briefly. All studies discussed until this point refer to the fiscal impact of immigrants at one point in time, usually a fiscal year; these studies do not take into account the future impact of current immigrants and their off springs, which are necessary for understanding the full fiscal consequences of admitting an immigrant. Immigrants that are estimated to be net contributors in the year of examination, might be net beneficiaries in subsequent years, after they retire from the workforce. On the other hand, immigrants that are estimated to be net beneficiaries in the year of examination, such as students, might be net contributors in subsequent years, after entering the workforce. In attempting to address the issue, dynamic models have been used, which generally estimate the NPV (net present value) of the net fiscal impact of immigrants. While the advantages of using dynamic modeling are clear, these are offset by the disadvantages of their heavy use of modeling assumptions that are necessary in order to construct future predictions. In order to estimate the future fiscal impact of immigrants, the authors' need to estimate, among others, the future fertility rates of immigrants and natives, the future immigration and tax policy of the government, future return immigration rates, educational attainment of the immigrants' off springs, etc. These assumptions can undermine any conclusions made.

A pioneering study that applied the dynamic approach, as part of the "New Americans" study is Lee and Miller (1997). The authors begin with a static estimation similar to the calculations made in the previously mentioned studies; they construct different fiscal impact profiles by estimating the current net fiscal impact of immigrants dependent on characteristics that might influence it - age, educational attainment, times since arrival, etc. Then, demographic and economic assumptions about the future are formulated; these are required in order to estimated immigrants' net fiscal impact in each point of time in the future. A few examples of the assumptions made follow, just so to sense the scope of the assumptions that have to be made; the future age profile of immigrants' and their descendants, estimated according to their current fertility (assuming it converges to the fertility of the general population in two generations); during their lifetime, 30% of immigrants return back to their home countries; starting in 2016, the debt/GDP ratio will remain at the 2016 level, and

appropriate budgetary adjustments will be achieved by a 50-50 combination of raising taxes and lowering benefits; immigrants continue to receive benefits as they did in the baseline year. Based on these assumptions, the authors can apply appropriate fiscal impact profiles for each point in time. This enables the calculation of the present value of the taxes paid by the marginal immigrant and his descendants minus the present value of all costs they impose, resulting in the NPV of an immigrants.

The results reveal that the net fiscal impact of immigrants (their NPV which includes all of their descendants) varies greatly with their age of arrival and educational attainment. The net fiscal impact usually peaks for immigrants that arrived in the United States aged between 10 and 25, and subsequently declines, reaching a trough for immigrants that arrived in the United States aged between 55 and 70. The net fiscal impact is higher, the higher the education of immigrants. For example, an immigrant that moved to the United States at around the age of 20 with an education higher than high school was estimated to have a net fiscal impact (NPV) of approximately $408,000 (2013 dollars), while an immigrant that moved to the United States at around the age of 55 with education lower than high school, was estimated to have a net fiscal impact of -$260,000. The net fiscal impact was estimated to be negative for all immigrants who moved to the United States after the age of 20, 35 and 50 for immigrants with education lower than high school, immigrants with high school education and immigrants with education higher than high school, respectively. An interesting finding of the study is that the net fiscal impact of immigrants, when considering only their own lifetime, is negative for all immigrants with education lower than high school and for immigrants with high school education, regardless of the age of arrival at the United States. Only for immigrants with education higher than high school is the net fiscal impact positive when moving to the United States at certain ages (10 to 45). In contrast, the net fiscal impact of all immigrants' descendants is positive. Hence, overall, when considering the own lifetime of the immigrants with lower than high school and high school education together with their descendants, the net fiscal impact is positive for certain ages of arrival at the United States, as mentioned above.

When considering the actual profile of current immigrants (with regard to time of arrival at the United States and skills), the average net fiscal impact of the average immigrant ((his / her NPV which includes all of this / her descendants) was estimated to be $119,000, consisting of a negative net fiscal impact of $4,000 during his / her own lifetimes, and a positive net fiscal impact of $123,000 when taking into account this / her descendants.

Taking a slightly different approach, Auerbach and Oreopoulos (1999) analyze the fiscal impact of immigrants in the United States on the fiscal imbalance using the method of generational accounting. The authors estimate the generational accounts for natives and immigrants; these tally the tax revenues minus government expenditures that the government is estimated to receive from each generation over its remaining lifetime, in present value. The calculations begin with the government's intertemporal budget constraint, "which states that the government's current net wealth plus the present value of the government's net receipt from all current and future generations (the generational accounts) must be sufficient to pay the present value of the government's current and future consumption" (Auerbach et al. 1991). The authors achieve this by adjusting the taxes paid and benefits received for all generations, or solely for future generations. As with all dynamic studies

of immigration, the calculations require numerous assumptions to enable future projections about the population, government consumption and other variables. The tax and benefits profiles of natives and immigrants used in the study are those of Lee and Miller (1997).

The authors find that under the then current immigration policy, there is a need for an adjustment that would increase the burden on newborns by approximately $10,300, for example, by raising taxes by 6% and cutting benefits by 6%. If immigration is eliminated in the future, and the adjustments required to deal with the fiscal imbalance are allocated to future generations, the burden on the remaining future individuals will increase by approximately $5,900. However, if immigration is eliminated in the future and the adjustments required to deal with the fiscal imbalance are allocated to all generations, the burden on the remaining future individuals will *decrease* by approximately $5,500. The difference is explained by the fact that immigrants comprise a larger share of future generations, thus, their relative fiscal contributions are higher in the future. Nonetheless, the authors conclude that the impact of immigrants on the fiscal balance is extremely small compared with the extent of the overall imbalance, so that immigrants should not be considered as a major contributor to the imbalance, nor a possible solution.

Further extending the dynamic approach, Storesletten (2000) combines the NPV approach in a general equilibrium overlapping generations model for the United States to examine whether immigration can solve the fiscal problems precipitated by the aging population. The model accounts for three differences between natives and immigrants - age, productivity and fertility. Immigrants are further differentiated by the time of their arrival and their legal status. Unlike other dynamic studies, the use of a general equilibrium model enables the author to account for the reciprocal effects between the government budget and the interest rates and wages; higher interest rates increase the cost of the public debt, and lower wages lower tax revenues. The author finds that admitting a low-skill immigrant imposes a negative NPV, regardless of his age of arrival, in contrast with Lee and Miller (1997) who found that low-skill (low education in the case of their study) immigrants that move to the United States before the age of 20 have a positive NPV. With regard to medium-skill immigrants, they impose a positive NPV if they move to the United States between the ages of 20 and 50 (compared with an arrival up until the age of 35, as found in Lee and Miller (1997)); high-skill immigrants impose a positive NPV if they move to the United States between the ages of 15 and 55 (compared with an arrival up until the age of 50, as found in Lee and Miller (1997)). The NPV of low-skill, medium-skill and high-skill immigrants peaks at around the ages of 35,40 and 45 respectively. The maximum NPV for high-skill immigrants was found to be $285,000 (2013 dollars), while as mentioned, the maximum NPV for low- skill immigrants slightly below zero. Overall, the NPV curve of Storesletten is hump shaped, with negative NPV in the low ages of arrival to the United States and high ages of arrival to the United States, while the NPS curve of Lee and Miller is positive for even immigrants who arrive as infants, and stays positive until the ages of 20-50 (depending on the education level of the immigrants), when it becomes negative.

On average, when considering the actual profile of immigrants (with regard to time of arrival at the United States and skills), the net fiscal impacts the average immigrant (his / her NPV which includes all of his / her descendants) was estimated to be $12,000. With respect to the question of whether immigration can solve

the United States' fiscal problems, the author concludes that the current profile of immigrants admitted to the United States cannot solve the problem, but an inflow of working-age medium and high skilled immigrants can provide a solution; for example, increasing annual immigration by 1.6 million immigrants aged 40-44 with high skills will solve the fiscal problem.

Storesletten (2003) repeats the exercise for Sweden, without accounting for the different skills or education of immigrants, instead examining the NPV of an "average" immigrant male and an "average" immigrant female. The author finds that the average immigrant in Sweden imposes a negative NPV of $31,000, in contrast with the positive NPV found for an average immigrant in the United States by both Lee and Miller (1997) and Storesletten (2000). The differences are explained by the fact that immigrants in Sweden fare much worse in the labor market than immigrants in the United States; the difference in employment of natives and immigrants is much larger in Sweden, and so is the difference in wages. Moreover, the larger government sector, higher taxes and stronger redistribution effects to non-workers in Sweden amplify the differences between the United States and Sweden. Still, the author finds that immigrants who move to the Sweden between the ages of 20 and 35 impose a positive NPV, that peaks at around 25 with a positive NPV of $36,000, substantially lower the highest positive NPV for an immigrant in the United States.

Studies that use the dynamic approach have been conducted for other European countries (for example, Roodenburg 2003 for the Netherlands, Chojnicki et al. 2010 for France and Bonin et al. 2000 for Germany) producing conflicting results, some conclude that the NPV of immigrants is negative, while others find that immigrants impose a positive NPV. This emphasizes the effect of the different demographic profiles of immigrants to each of the countries studied, producing contrasting results.

Although studies on the fiscal impact of immigrants have been conducted for most Western countries that have experienced considerable immigration, whether by academics or by statistical bureaus or think-tanks, no similar studies were conducted for Israel, despite its considerable immigrant population. As with other countries, researchers have focused on immigrants' labor market impact (see for example, Friedberg 2001 and Cohen and Hsieh 2001), while none studied their fiscal impact. This study is first to research the fiscal impact of immigrants in Israel.

Apart from studies on the fiscal impact of immigrants, another research literature is relevant for my study - the literature on the effects of taxation and government expenditures on the distribution of income. These studies are mainly conducted by statistical bureaus and think-tanks (for example, Australian Bureau of Statistics 2012, Congressional Budget Office 2013 and Tonkin 2014), with the aim of analyzing how different taxes and government expenditures effect different income quintiles. Although the goal of these studies does not directly relate to the goal of this study, their methodologies involve the attribution of government taxes and expenditures to households, as required in this study. Instead of classifying households by nativity, households are classed into income quintiles, and the tax contributions on the one hand, and use of certain services on the other hand, of each income quintile are examined. These studies are conducted in order to examine the distribution of certain tax contributions and services amongst households, and are not meant to provide a complete analysis.

Nonetheless, these studies provide several methodologies that were used in this study to gauge which households bear different tax burdens, such as the corporate income tax.

Classifying Households

Similarly to other studies (Clune, 1998, Garvey and Espenshade, 1998 and most other studies on this subject), I classify households according to characteristics of the head of the household, defined by the CBS (2013b) as the main earner of the household; i.e., the employed person who usually works more hours than other members of the households, irrespective of age and sex[1]. To enable the comparison of different groups of interest, I classify households into the following groups:

(1) Households in which the head of the household immigrated to Israel from any country in the FSU from 1990 onward ("Late immigrants - FSU").

(2) Households in which the head of the household immigrated to Israel from any country in the FSU until 1990 ("Early immigrants - FSU").

(3) Households in which the head of the household immigrated to Israel from any country *other than* countries in the FSU from 1990 onward ("Late immigrants - other").

(4) Households in which the head of the household immigrated to Israel from any country *other than* countries in the FSU until 1990 ("Early immigrants - other").

(5) Households in which the head of the household was born in Israel to a father who was born in any country in the FSU ("Second generation - FSU").

(6) Households in which the head of the household was born in Israel to a father who was *not born* in a country from the FSU (Natives).

Then, I consolidated the primary groups into the following higher-level groups to allow further analysis: all immigrants (groups 1+2+3+4) and all natives (groups 5+6); all immigrants from the FSU (groups 1+2), all other immigrants (groups 3+4) and all natives (groups 5+6); immigrants from the FSU whose head of household entered Israel after 1990 (group 1) and all other (groups 2+3+4+5+6).

Identifying households solely depending on the head of the household means that households are identified as immigrant even if the spouse of the head of the household is native. Although some would argue that households should be identified as immigrants only if both spouses are immigrants, the data reveals that this is practically a non-issue. In 2011, of all households of immigrants from the FSU, 59.8% (weighted) head of households lived with a spouse. Of these, 89.2% lived with a spouse that was also an immigrant from the FSU. 14.7% head of households lived with additional person/s over the age of 15 who were not their spouse. As before, a high share of the additional persons in the household were also immigrant – 83.8%. The remaining heads of households (25.5%) lived without additional household members over the age of 15; i.e., these are households of single persons with or without children. These figures indicate that in the overwhelming majority of cases, households that were classified as immigrant are those in which all adults in the households were immigrants.

[1] In case there are no earners, or there is more than one earner, the head of the household is the one who is defined as such by the respondents.

Unit of Analysis – Some studies consider individuals as their unit of analysis (for example, Dustmann et al. 2010, Dustmann and Frattini 2013), while most consider households as their unit of analysis (for example, Clune 1998, Garvey and Espenshade 1998, OECD 2013a). As mentioned, when considering the household as the unit of analysis, whether the household will be identified as an immigrant household is mostly determined by the immigration status of the head of the household; this means that other households members will be identified as immigrants regardless of their country of birth. In contrast, when considering individuals as the unit of analysis, whether an individual is identified as an immigrant or not is based solely on its own immigration status (children of immigrants are mostly considered immigrants regardless of their country of birth). Nonetheless, with this study, this is not a major issue, since data reveals that immigrants tend to marry immigrants; this means that examining immigrant individuals as opposed to immigrant households would lead to a similar pool of subjects. The difference between these two groups, would come down to the fiscal impact of non-immigrant spouses of immigrant head of households (relevant for approximately 10% of households).

With that being said, considering households as the unit of analysis, as done in this study, is more logical, for both practical and theoretical reasons. First, data sources such as the expenditure survey contain data at the household level only. Because the survey was used extensively throughout the study, analysis had to be made at the household level; not only would it be impossible to assign expenditure to each household member, but also considering the overall household purchases makes sense, because families tend to pool their income together for consumption. Second, several taxes, such as income tax and benefits, such as old-age allowance, are determined according to the individual's family status. Third, analyzing households naturally encompasses all children, whose number significantly affects the education benefits that households receive; analyzing individuals would result in the problem of "assigning" children to either the father or the mother. Lastly, many immigrants tend to move with their families; this is certainly true for immigrants who moved to Israel from the FSU because once an individual was found eligible to migrate to Israel, his family was, in most cases, eligible to migrate to Israel as well. When a government accepts the immigrants, it accepts the family a single unit, and consequently, their impact on the government should be considered accordingly.

Data

Income and Expenditure - Household expenditure and income data was extracted from the 2011 Household Expenditure Survey (CBS 2013c) and the 2011 Household Income Survey (CBS 2013a) published by the Israeli Central Bureau of Statistics (CBS). The Surveys are conducted annually and cover the entire Israeli population, in all types of localities[2]. In 2011, 14,996 were sampled for the Income Survey and responded to income queries only, relating to all household income sources, classified by type, including all kinds of governmental allowances. Of them, 6,051 were further sampled for the Expenditure Survey for which they responded to additional questions regarding their household expenditure[3]. The expenditure survey had each household keep a diary to document every purchase it made resulting in a database that detailed the expenditures of each household, categorized according to approximately 1,000 goods and services categories. The expenditure data enabled the estimation of each household's contribution to various government tax revenues, such as fuel taxes, valued added tax and others.

Apart from data on various incomes and expenditures, the surveys contain data on goods owned by the households and numerous demographic and socio-economic characteristics of members of the households. These variables include among others, the place of birth of each member of the household, which enables the desired classification of households (CBS 2013d). The data was provided by the Social Sciences Data Center (ISDC) at the Hebrew University in Jerusalem, Israel.

Obviously, the survey sample size does not cover the entire population. Consequently, in order to attain estimates that pertain to the whole population of Israel, the CBS has calculated for each household (i.e. for each observation) an inflating coefficient entitled "Weight" such that the weight of each household observation is the estimated number of households of its kind in the general population. The total number of weights in the sample sum up to the approximate number of households in the general population. Throughout the study, the benefits and contributions that were calculated for households were averaged according to these weights.

Table 1 details the number of households that constitute each group, both in the sample (Income Survey) and when using the each household weight to attain the estimated number of households in the population. In addition, the share in the overall population of each group is calculated by dividing its weighted number of households by the weighted total number of households. Similarly, Table 2 relates to the Expenditure Survey.

[2] Excluding collective moshavim, kibbutzim and Bedouins who live outside localities. With regard to the researched subject, this is insignificant.
[3] The population of Israel in 2011 was 7,766 million (CBS 2012c).

Table 1 – Number of Households and Their Share of the Population, by Household Type, Income Survey, 2011

Household Type	Number of Households		Weighted Share of Households
	Sample	Weighted	
Late Immigrants - FSU (1)	2,222	321,651	14.5%
Early Immigrants - FSU (2)	470	64,804	2.9%
Late Immigrants – Other (3)	731	107,891	4.9%
Early Immigrants – Other (4)	2,610	359,567	16.2%
Second Generation – FSU (5)	363	51,565	2.3%
Natives (6)	8,600	1,314,597	59.2%
All Immigrants (1+2+3+4)	6,033	853,913	38.5%
All Natives (5+6)	8,963	1,366,163	61.5%
All FSU Immigrants (1+2)	2,692	386,455	17.4%
All Other Immigrants (3+4)	3,341	467,458	21.1%
All Natives (5+6)	8,963	1,366,163	61.5%
Late Immigrants – FSU (1)	2,222	321,651	14.5%
All Other (2+3+4+5+6)	12,774	1,898,425	85.5%
Total	**14,996**	**2,220,076**	**100.0%**

Source: own calculations – CBS 2011 Income Survey (2013a)

Table 2 – Number of Households and Their Share of the Population, by Household Type, Expenditure Survey, 2011

Household Type	Number of Households		Weighted Share of Households
	Sample	Weighted	
Late Immigrants - FSU (1)	852	304,003	13.7%
Early Immigrants - FSU (2)	190	64,683	2.9%
Late Immigrants – Other (3)	315	119,457	5.4%
Early Immigrants – Other (4)	1,043	365,282	16.5%
Second Generation – FSU (5)	148	50,943	2.3%
Natives (6)	3,503	1,311,239	59.2%
All Immigrants (1+2+3+4)	2,400	852,423	38.5%
All Natives (5+6)	3,651	1,362,182	61.5%
All FSU Immigrants (1+2)	1,042	368,685	16.6%
All Other Immigrants (3+4)	1,358	484,738	21.9%
All Natives (5+6)	3,651	1,362,182	61.5%
Late Immigrants – FSU (1)	852	304,003	13.7%

All Other (2+3+4+5+6)	5,199	1,911,602	86.2%
Total	**6,051**	**2,215,605**	**100.0%**

Source: own calculations – CBS 2011 Expenditure Survey (2013c)

Several data items appear both in the Expenditure and Income Surveys. In these cases, I favored using the Income Survey, as it has approximately 2.5 times the number of households. As mentioned earlier, of the 14,996 households that are interviewed for the Income Survey, 6,051 are also interviewed for the Expenditure Survey, while 8,945 households are interviewed exclusively for the Income Survey; these additional observations appreciably enlarge the sample, buttressing statistical significance.

Additional Demographic Characteristics - There was one item on which neither the Expenditure Survey nor the Income Survey contained detailed data – the number of adults by age group in each household. The data is essential for allocation government expenditure on healthcare. The data was extracted from another survey – the 2011 Labor Force Survey (CBS 2013j). The Labor Force Survey is conducted several times a year by the CBS with the intention of tracking developments in the Israeli labor market. In 2011, after removing 839 households that had no information regarding the birth country of the head of the household, I was left with a sample of 24,906 households. Grouping households in the same manner as described above, results in almost identical population shares for each group[4]. Although the sample is bigger than the Income and Expenditure Survey samples, it lacks most of the required data for the study, as it doesn't contain any income or expenditure data. So, the Labor Force Survey was used exclusively for data on the number of adults by age group, as will be detailed in the respective section.

Government Revenues – Data detailing government revenues from taxes and fees was extracted from the Israel Government Revenues Administration annual report for the years 2011-2012 (Israel Government Revenues Administration 2013). The report details actual tax collection by tax item. Furthermore, it contains additional data on each tax that was useful in trying to assign it to households. Supplemental government revenues data was extracted from the National Insurance Institute (NII) Report, as detailed below.

Government Expenditures - Two sources were used to obtain government outlays data - Budget Implementation by Ordinances for 2011 (Accountant General 2011) and the Government Budget for 2011-2012 (Budget Department 2010). The former details actual government expenditures in 2011 by ordinances (there are about 7,000 ordinances). The second source – the Government Budget for 2011 – 2012 (Budget Department 2010) was used in order to explicate ordinances. While the previous data source only narrated the title of each ordinance and its amount, the Government Budget contains full description of ordinances that assist in figuring

[4] The Labor Force Survey included the following number of observations for groups 1 through 6 respectively: 3,563, 756, 1,224, 4,630, 546 and 14,186. The corresponding share of the population groups are: 14.8%, 2.7%, 4.8%, 16.4%, 2.3% and 59.0%.

out how different expenditures should be attributed to households. Supplemental government expenditures data was extracted from the National Insurance Institute Report, as detailed below.

National Insurance Institute – The NII collects two of the mandatory payments for households in Israel – NII payments and health insurance payments (all other payments are collected by the Israeli Tax Authority and are detailed as described in the "Government Revenues" section above). Moreover, the NII is in charge of handing over transfer payments to households. Data on the collection of payments and distribution of transfer payments by the institute was extracted from their annual report for 2011 (NII 2012).

Additional data – Different sources were used to obtain specific information. These sources are detailed in each respective section.

Group Characteristics

The characteristics of each household has a profound effect on its net fiscal impact. Therefore, it is pertinent to examine the average characteristics of each population group. Table 3 details the household socio-economic and demographic characteristics for each of the six groups to which the population was divided into. These shed light not only on the general features of each group of interest, but also on several specific features that might be accountable for differences in the net fiscal impact of each group. When possible, data was extracted from the Income Survey, as explained above; when Income Survey lacked the required data, the Expenditure Survey was used.

Table 3 – Household Socioeconomic and Demographic Profile, by Group*, 2011

	Group						
	1	**2**	**3**	**4**	**5**	**6**	**National Average**
Share of Households[1]	14.5%	2.9%	4.9%	16.2%	2.3%	59.2%	100%
Demographic Profile							
Head of Household is Arab[2] (%)	0.1	0.9	2.6	0.7	0.0	24.0	14.5
Household Persons	2.59	2.66	3.43	2.40	2.73	3.83	3.34
Household Standard Persons[3]	2.32	2.35	2.80	2.18	2.38	3.02	2.74
Age of Head of Household	50.8	59.7	41.8	65.2	50.3	42.0	47.8
Children Under 18	0.52	0.50	1.22	0.35	0.68	1.47	1.09
- 0-4	0.16	0.11	0.40	0.07	0.29	0.45	0.33
- 5-17 (School Age)	0.36	0.39	0.82	0.28	0.40	1.02	0.76
Head of Household Schooling Years	14.0	13.5	13.1	11.8	15.3	13.5	13.3
Head of Household has a Bachelor's Degree (%)	41.1	31.2	27.9	21.3	43.1	28.4	29.5
Students	0.07	0.08	0.09	0.07	0.10	0.14	0.11
Persons Over 65	0.46	0.55	0.40	0.75	0.47	0.15	0.32
Economic Profile - Income							
Earners	1.29	1.16	1.21	0.88	1.24	1.45	1.31
Gross Monthly Income – Total (₪)	11,733	16,261	11,784	13,860	18,728	15,540	14,629
- Per Person	4,535	6,106	3,436	5,764	6,861	4,060	4,382
- Per Standard Person	5,507	6,914	4,214	6,348	7,861	5,141	5,340
Net Monthly Income – Total (₪)	10,217	13,595	10,424	11,785	15,308	12,999	12,345
- Per Person	3,949	5,105	3,040	4,901	5,608	3,396	3,698
- Per Standard Person	4,404	5,781	3,728	5,398	6,426	4,300	4,506

Share of Gross Income (%)							
- From Labor	79.9	70.4	66.9	60.7	71.3	82.5	77.5
- From Capital	0.6	3.5	2.0	5.3	4.2	3.0	3.1
From Government Allowances	16.4	11.5	16.8	16.3	9.7	8.9	11.3
- From Pensions and Social Insurance Funds	1.8	14.0	10.2	16.7	14.0	4.3	6.8
- From Transfers from Other Households	1.3	0.7	4.1	1.0	0.9	1.3	1.3
Economic Profile – Expenditure / Ownership							
Monthly Compulsory Payments[4] *(₪)*	1,516	2,666	1,360	2,075	3,419	2,541	2,284
Monthly Consumption – Total[5] *(₪)*	10,153	13,646	11,493	12,786	17,108	15,299	13,967
Monthly Consumption – Monetary[5] *(₪)*	8,037	9,419	9,114	8,839	12,770	11,697	10,543
Apartment Ownership Share (%)	48.6	83.2	55.7	83.4	73.6	71.1	69.5
Number of Cars[6]	0.57	0.85	0.42	0.71	0.93	0.96	0.84

* All calculations are within group averages.
Source: own calculations – CBS 2011 Expenditure Survey (2013c) and CBS 2011 Income Survey (2013a).

[1] Estimated using the Income Survey. Share of households using the Expenditure Survey are similar, as detailed in the "data" section.
[2] Share of households in which the head of the household is Arab. The complimentary share are households in which the head of the household is "Jewish or Other" as described by the CBS.
[3] "Household size affects the standard of living that a given income can sustain. To create a more appropriate basis for comparing standards of living of households of different sizes, it is accepted to calculate per-capita income in households. This calculation is based on the assumption that the number of persons in a household does not have a uniform effect on the household's standard of living from a given income, because there are advantages to a larger household. Therefore, the number of persons in a household is transformed according to a standard scale, in which a two-person household is the base unit. As the number of persons in the household rises, each added person in the household is assigned a declining marginal value" (CBS 2013b).
[4] Income tax, health insurance and social security.
[5] "Monthly Consumption – Total" is the expenditure on consumption that includes in-kind and imputed consumption on vehicles and housing, while "Monthly Consumption – Monetary" excludes in-kind and imputed consumption to result in consumption for which money was paid in actual fact during the month.
[6] Household car ownership is classified by the CBS as "no car", "one car" or "two cars or more". I assume that "two or more cars" means exactly two cars.

Share – According to the Income Survey, late immigrant - FSU, early – immigrant – FSU and second generation – FSU households accounted for 14.5%, 2.9% and 2.3% of the total number of households, respectively. The other immigrant households accounted for 4.9% and 16.2% of the total number of households for late immigrant and early immigrant groups, respectively. 59.2% of households were categorized as native. When comparing the share of all immigrant households to the share of native households, the former was 38.5% and the latter was 61.5%. These numbers emphasize the magnitude of Israel's immigration absorption.

Religion – The CBS classifies individuals as either "Arab" or "Jews or Other". The former includes Muslims, Arab Christians and Druze, while the latter includes Jews, non-Arab Christians and those without a religious identification. As described in the table, 24% of households in the native group are Arab, while for all

the immigrant groups, as well as the second-generation group, the percentage is significantly lower – between 0% and 0.1% for the second-generation FSU and the late immigrant – FSU and 2.6% for the late immigrants-other. This stems from the Israeli immigration laws, discussed in the introduction**,** which allow Jews to immigrate to Israel, while making it difficult for others to do so. Distinguishing Arabs from Jews is germane, because Arab households' income is on average about 45% lower than Jewish households' income, and the number of persons in their household is larger (CBS 2013b).

Size - Native households are larger than immigrant households, especially immigrants from the FSU; while the average number of persons in native households is 3.83 person, the averages for late immigrant – FSU households, early immigrants – FSU households and second-generation - FSU are 2.59, 2.66 and 2.73 respectively – about a third lower than native household size. The average number of persons in other immigrant households is lower than natives as well, more so for early immigrants (2.4) but for late immigrants as well (3.43). Part of the reason for the higher number of persons in natives households is due to the fact that Arab and Ultra-Orthodox households are over-represented in the native group and this population tends to have considerably larger households due to higher fertility rates.

Age - Consistent with their larger households, native households tend to be younger and have more children than immigrant households. The average age of the head of the native households is 42 years, while the averages for late immigrants –FSU, early – immigrants – FSU and second generation – FSU are 50.8, 59.7 and 50.3 respectively. The averages for late immigrants – other and early immigrants – other are disparate – 41.8 for the former and a remarkably higher 65.2 for the latter. This may indicate the differing nature of these two immigrants groups, as opposed to the groups of immigrants from the FSU (late, early and second – generation) whose demographic characteristics are mostly quite similar. With respect to the number of children under the age of 18, native households have on average 1.47 children, while the late immigrants – FSU, early immigrants – FSU and second-generation – FSU have an average of 0.52, 0.5 and 0.68 children respectively. Once more, the two other immigrants groups are dissimilar in their average number of children – 1.12 for the late group and only 0.35 for the early group. This of course stems from the fact the late immigrants households are considerably older than early immigrant households, thus, children are less likely to be living under their roof. The other size of the coin is that FSU immigrant households tend to comprise of a higher number of persons over the age of 65. Their average numbers are 0.46, 0.55 and 0.47 for the late immigrants – FSU, early immigrants – FSU and second generation – FSU groups respectively, while its only 0.15 for the native group. For the other immigrant groups the average number of persons over the age of 65 is 0.4 and 0.75 for the late and early groups, respectively.

Education – Immigrants from the FSU tend to be better educated than both natives and immigrants from other countries. The head of household of Late immigrants - FSU, early immigrants – FSU and second generation –FSU households had on average 14.0, 13.5 and 15.3 years of schooling. By contrast, native heads of

household had an average of 13.5 years of schooling, while heads of households of other immigrants had an average of 13.1 and 11.8 years of schooling for late and early immigrants, respectively. The relations between these groups remain the same when looking at share of households who are headed by a person who attained a Bachelor's degree or higher; second generation – FSU households have the highest education attainment – 43.1%, while late immigrants – FSU and early immigrants – FSU have the second and third highest education attainment - 41.1% and 31.2%. The education attainment of native households is significantly lower – only 28.4% and the education attainment of other immigrants is even lower. Although late immigrants from the FSU are remarkably better educated then natives, their income does not follow suit, as will be described below. This may stem from discrimination, lack of language proficiency, lack of connections, less work experience in Israel and other factors which recent immigrants are faced with. This is not the case for the second generation and for early immigrants from the FSU who are affected by the aforementioned hindrances to a lesser extent.

Earners - Each group's economic profile is crucial to its fiscal impact as well. The number of earners gauges each group's participation in the labor market. Native households tend to have a higher number of earners – 1.45, while all immigrant groups and the second generation group have a lower number of earners. For the FSU groups, it ranges from 1.16 for the early immigrant group to 1.29 for the late immigrant group. For the other immigrants groups, as before, the numbers differ considerably – 1.21 for the late immigrant group and only 0.88 for the early immigrant group, consistent with the latter's older age composition.

Income - Although demographically the FSU groups are similar, their economic profile diverge. Late immigrant households earn an average gross monthly income of ₪11,733, while early immigrant households earn ₪16,261 and second-generation immigrant households earn ₪18,728. Other immigrant households earn an average of ₪11,784 for late immigrants and ₪13,860 for early immigrants. Native households earn ₪15,540 which is about 32% higher than the income of late immigrants – FSU households, and lower than the income of the other FSU groups. Natives earn more than both of the other immigrant groups. Because FSU households are smaller than native households, the relation between native household income and late immigrants – FSU household income are reversed when considering the income *per person*; late immigrants – FSU households earn an average gross monthly income per person of ₪4,535 while native households earn ₪4,060. Early immigrants – FSU and second generation – FSU earn an even higher income than native households, when examining the income per person. The other immigrant – late households earn less per person than native households, while other immigrant – early households earn more than natives. All of these relations hold true when looking at the average *net* monthly income as well.

Households income can further be analyzed by dividing gross income into different categories that shed light on nature of each household's income sources. The most important source of income is labor, either salaried or self employed. Labor income accounted for a similar share of late immigrants – FSU and native households – 79.9% and 82.5%, respectively. The labor income share of the other two FSU groups – early immigrants and second generation was 70.4% for the former and 71.3% for the latter. The labor income share of

other immigrants were lower than 70%. As opposed to labor income, capital income reflects the economic history of the households; capital income are earnings from accrued capital that include income from property, interest, bonds and dividends. Accordingly, capital income accounted for only 0.6% of the gross income of late immigrants form the FSU who come from poorer backgrounds, enabling them to accrue less capital, while it accounts for a larger share of FSU immigrants who came earlier – 3.5% and of second generation – FSU – 4.2%. With respect to natives, capital accounted for 3.0% of their gross income. With respect to other immigrants, capital accounted for 2.0% and 5.3% of their gross income for late immigrants and early immigrants, respectively.

Income from pensions and social insurance funds also depend on the household's former economic performance and obviously, on the share of households within each group who had reached the age in which pensions are distributed. Households of late immigrants from the FSU have the lowest share of gross income attributed to pensions and social insurance funds; despite their relatively high number of persons over the age of 65 and the age of the head of households, the share of their gross income from pensions and social insurance funds is only 1.8%, compared with 4.3% for native households whose age composition is significantly lower. The share for other two FSU groups is 14% for both. The age composition of early FSU immigrant households is higher than the composition of late immigrant households, and so is their economic performance. As for the second generation group, their age composition is similar to the late immigrant group, but their economic profile is better, which might explain the difference. The share for the other immigrants group is 10.2% for the late immigrants and 16.7% for the early immigrants. The latter's share is the highest of all groups, which is logical given their age composition.

An important aspect relating to fiscal impact of different population groups is their reliance on government allowances. Government allowances include all allowances from the NII, amongst them child allowances, old-age allowance and income support, in addition to other governmental support. A detailed breakdown is provided in the "government revenues attribution results" section. All FSU groups had a higher share of government allowances out of their overall gross income; 16.4% of late immigrants household gross income came from government transfers (the share is the highest, but the overall income is considerably lower than others, thus the absolute payments are not the highest); the share for early immigrants was lower – 11.5% and that of second generation households was 9.7%. Government allowances accounted for only 8.9% of native households' gross income. The share for the two other immigrant groups were high – 16.8% for late immigrants and 16.3$ for early immigrants.

Compulsory Payments – This amount refers to income tax, social security payments and health insurance payments. These are in direct relation to the households' income level, although it isn't a one to one relation, due to the regressive nature of taxes and the fact that different groups benefit from different levels of tax deductions. So, the group with the highest income – second generation – FSU – also pay the most compulsory payments, while the 2 groups with the lowest incomes – late immigrants – FSU and late

immigrants – also pay the least compulsory payments – ₪1,516 and ₪1,360, respectively. The compulsory payments of native households were ₪2,541.

Consumption – As with compulsory payments, consumption is obviously directly related to household income. Accordingly, the monetary consumption expenditure of second generation households was the highest – ₪11,697, while the monetary consumption expenditure of late immigrants – FSU was the lowest – ₪8,037. The monetary consumption expenditure of natives was ₪11,697.

Government Revenues

Government revenues were divided into 3 categories – tax and fees revenues, NII revenues and other revenues. In 2011, revenues in each category amounted to ₪211,512 million, ₪48,708 million and ₪132,069 million, respectively. Total government revenues were ₪392,289 million. The first category of revenues refers to the receipts from all the taxes and fees that the government levies on all units (individuals, households, businesses, etc.). Apart from these taxes, there are two additional compulsory payments which are handled not by the government (or it's tax authority), but by a governmental entity called the NII; the second category refers to its revenues. The NII has two major roles; first, the collection of the two compulsory payments from individuals and employers – social security and health insurance; second, the distribution to individuals and households of most government allowances such as unemployment benefits and elderly allowances. Although, the NII publishes separate revenue reports, I consider it a part of the government, as its roles are innately related to the government, and the separation of the government and the NII is merely artificial. The third category of revenues refers to all government receipts that do not stem from households, but solely from businesses, other governments, as well as loans. These include among others American aid grants, royalties on natural resources, receipts from the sale of government owned companies / stocks and domestic and foreign loans which account for 80.2% of this category.

Table 4 details government revenues in 2011 from taxes and fees and the share of each tax out of the total taxes and fees revenues. Table 5 details NII revenues that are collected from the public (the government is responsible for part of its revenues) and the share of each item out of the total. Table 1A in Appendix 1 details revenues included in the third category.

Following the tables are the descriptions of each item in these two categories, and how each revenue item was attributed to households.

Table 4 – Government Tax and Fees Revenues (million ₪), 2011

	Government Revenues	**Share of Government Tax and Fees Revenues**
Direct Taxes	103,304	48.8
Income Tax	86,384	40.8
Salaried Employees and Self-Employed	44,033	20.8
Corporations	26,961	12.7
Capital Markets and Dividend Deductions	6,688	3.2
Corporations Managers	8,702	4.1
Salary Expenditure Taxes	10,850	5.1
Non Profit Organizations Value Added Tax	8,050	3.8
Financial Institutions Value Added Tax	2,450	1.1
Employer Tax	350	0.2

Real Estate Taxes	7,303	3.5
Property Tax	81	0.0
Purchasing Tax	4,126	2.0
Appreciation Tax	3,076	1.5
Sell Tax	20	0.0
Adjustments	-1,233	-0.6
Indirect Taxes	102,979	48.7
Value Added Tax	68,754	32.5
Import Taxes	18,001	8.5
Customs Duties	2,920	1.4
Import Excise Tax	15,081	7.1
Local Taxes	16,224	7.7
Local Excise Tax	307	0.2
Fuel Tax	15,118	7.1
Tobacco Tax	792	0.4
Stamp Tax	7	0.0
Fees	5,230	2.5
Total	211,512	100.0
Total (Including NII Revenues)	260,220	-

Source: Israel Government Revenues Administration (2013)

Table 5 – National Insurance Institute Public Revenues (million ₪), 2011

	NII Revenues	**Share of NII Revenues**
Social Security	31,294	64.2
Mandatory Health Insurance Payments	17,414	35.8
Total	48,708	100.0

Source: NII (2012).

Taxes Paid by Tourists – Allocating government tax revenues to Israeli households accurately requires the subtraction of government tax revenues that stem from tourist purchases. In 2011, 2.820 million tourists visited Israel (CBS 2014). In a study conducted for the Ministry of Tourism by Freeman (2013), the author uses CBS data to conclude that in 2011 tourists spent ₪17,761 million on goods and services purchased in Israel, most of which are flights, accommodation and transportation. Part of the amount is liable to certain taxes such as value added tax, excise taxes and import taxes. The contribution of tourists will be handled separately for each tax, in its respective section.

Expenditures of Israelis Abroad – In estimating tax contributions, one must take into account only expenditures that were carried out in Israel, as expenditures carried elsewhere do not contribute to the public coffers in Israel. This is indeed the case for all expenditures that were estimated throughout the report using the Expenditure Survey. Expenditures of Israelis abroad, which I estimated at ₪5,715 million in 2011[5], were subtracted from the calculations of household expenditure that were used to estimate the value added tax contributions of households.

The Contributions of Elements Other Than Households - For each tax and fee item, the revenues that were attributable to elements other households (businesses, government and local authorities, tourists and foreigners) were subtracted; these are handled separately in the "unattributed taxes and fees" section. The average contributions of households for each item, by population group are detailed in Tables 8 and 9 in the "government revenues attribution results" section.

Relative Attribution Method – In attributing tax revenues to households I apply a few methods, dependent on the taxed item. The method used for each item will be detailed in its respective section. The principal method used is a relative attribution method. The method is a bottom-up approach that enables the attribution of actual tax revenues to households, resulting in household estimated tax contributions that are revealing of each household's actual tax contribution. The method involves calculating for each household the share of its expenditure on the taxed item out of the total household expenditure on the taxed item, as appears in the Expenditure Survey. Then, multiplying this share by the total tax revenues stemming from the item, resulting in each household tax revenues contribution. This means that each household is attributed a share of total revenues from the item that is equivalent to its share of total expenditure on the items, that appear in the survey.

Following are the descriptions detailing the attribution of each government revenue item:

Income Tax – The tax is levied on the earnings of individuals, whether salaried or self-employed. As in other countries, income tax is progressive, ranging between 10% on incomes up to ₪5,070 to a marginal rate of 45% on incomes above ₪40,230 (Table 1B in Appendix 1 details these tax brackets). The effective tax rates are lower due to numerous deductions that benefit disabled persons, single parents, residents of certain preferred areas, students who had just finished their academic studies, etc. The average effective tax rate was 13.4% in 2011. New immigrants enjoy several deductions as well, the principal deduction being three deduction points (a monthly tax deduction of ₪628 tax deduction) during the 18 months following their immigration; two deduction points during the subsequent 12 months (₪418) and one deduction point during the 12 months afterwards (₪209) (Israel Government Revenues Administration 2013).

[5] A specific item from the CBS Expenditure Survey sums up expenditures that Israelis carried out when staying abroad.

The Expenditure Survey details the income tax contribution of each household, as estimated by the CBS (the contributions are not self-reported). The CBS takes into account all sources of taxable income that the household earns, and any relevant deductions due to the socio-economic status of its members. In certain cases, the tax rate is determined on an individual basis (even if the individual has an employed spouse), while in others, the tax rate takes into account the spouse's income (Israel Government Revenues Administration 2013). In any case, I consider as the household income tax contribution, the pooled contribution of all of it's members. In 2011, I find that the income of 49.7% of employed individuals did not reach the tax threshold. When considering households, 46.7% of late immigrants - FSU (group 1) households don't pay any income tax compared with 35.3% of native households (group 6). With regard to the other FSU groups – early immigrants (group 2) and second generation (group 5), 23.6% and 15.8% of households don't pay income taxes, respectively. Also, 44.8% of late immigrants – other households (group 3) don't pay income taxes and so do 31.5% of early immigrants – other households (group 4).

The actual income tax revenues in 2011 were ₪44,033 million (Israel Government Revenues Administration 2013), while the payments of all households in the Expenditure Survey only sum up to ₪38,505 million – a 12.6% difference. The difference likely stems from the well researched underreporting of income in household surveys (for example, Moore et al. 2000 surveys the subject. A broader discussion on the subject appears in the "capital markets and dividends deductions" section). Because higher incomes are especially prone to underreporting, the estimated income tax contributions of higher income populations groups (such as the FSU second generation and the early immigrants from the FSU) might be underestimated, while the estimated tax contributions of lower income population groups (such as the late immigrants from the FSU and from other countries) might be overestimated. In order for the total attributed contribution to equal actual revenues, the income tax contribution of each household, as appears in the Expenditure Survey, was inflated proportionally by 14.4%; the inflated figures were then used for the calculations. This method yields the same results that the relative attribution method would have yielded; as with the relative attribution method, the share of each household's contribution out of the total revenues remains the same after inflating its contribution (before the inflation the share is the survey contribution divided by the total survey contributions of all households. After the inflation, the share is the inflated contribution divided by the total actual contributions of all households; theses shares are equal). The resulting average annual income tax contribution per household is ₪19,874.

Mandatory Health Insurance Payments - Individuals over the age of 18 are required to pay the mandatory health insurance payments. The only exemptions are for individuals who receive certain government allowances, housewives whose spouse is insured and for the following three populations, in case they earn less than 5% of the mean wage - prisoners, immigrants who moved to Israel in the previous 12 months, and individuals under the age of 21. All other individuals, including the unemployed, are liable to pay (NII 2014a). The health insurance payment is burdened on individuals alone. On incomes below 60% of the mean income (₪4,984 in 2011), the mandatory health insurance rate was 3.1%. The marginal rate on income above 60% of the mean income was 5.0%. The rates are identical for salaried employees and self-employed individuals. The

maximum taxable income was ₪73,422 in 2011. Individuals who are not employed and do not fall into the 3 categories mentioned above, are required to pay ₪101 (NII 2012).

The Expenditure Survey contains an item detailing the mandatory health insurance payment of each household that sums up the individual mandatory health insurance payments of each of its members. The amount has been estimated by the CBS for each individual according to his/her income from various sources and his/her employment status. Because of its broad liability, I find that in 2011, only 1% of households did not incur health insurance payments. Comparing the groups, the share of households who did not incur any health insurance payments ranged between 0.4% for the early immigrants – other group and 2.5% for the late immigrants – other group. 0.9% of Late immigrants – FSU households did not incur any payments, and so did 1.2% of native households.

The actual collection of mandatory health insurance payments in 2011 was ₪17,414 million (NII 2012), while the payments of all households in the Expenditure Survey only sum up to ₪15,106 million – a 13.3% difference, a byproduct of the underreporting of income (as mentioned, health insurance payments depend on income). In order for the total attributed revenues to equal the actual revenues, the health insurance contribution of each household, as appears in the Expenditure Survey, was inflated proportionally by 15.3%; the inflated figures were then used for the calculations. As mentioned, this method yields the same results that the relative attribution method would have yielded. The resulting average annual mandatory health insurance payment contribution per household is ₪7,860.

Social Security Payments – Individuals over the age of 18 are required to pay social security payments until they reach retirement age. Exemptions are similar to the exemptions from health insurance payments, with additional exemptions for individuals who receive certain government allowances such as disability allowance (NII 2014b). The social security payment for each salaried employee is shared amongst the employee and the employer. On income up to 60% of the mean income, the social security rate levied on the employee was 0.4% and the rate levied on the employer was 3.55%[6]. The marginal rate on the income above 60% of the mean income was 7% on the employee and 5.78%[7] on the employer. Self-employed bear the full cost of social security payments; they pay 6.72% on income below 60% of the mean income and a marginal rate of 11.23% on income above it. Individuals who are not employed and do not fall into any exemption category, are required to pay ₪61. There are several other different rates for certain niche groups such as college students, early retirees and others, which will not be detailed herewith (NII 2012).

The Expenditure Survey contains an item detailing the social security payments of each household that sums up the individual social security payments of each of its members. The amount has been estimated by the CBS for each individual according to his/her income from various sources, his/her employment status and

[6] The rate for the first quarter of 2011 was 3.85%; the rate for the rest of the year was 3.45% (NII 2012). Calculating a weighted average for the whole year yields 3.55%.
[7] The rate for the first quarter of 2011 was 5.43%; the rate for the rest of the year was 5.9% (NII 2012). Calculating a weighted average for the whole year yields 5.78%.

his/her age. Due to the additional exemptions and the fact that retired individuals do not pay social security (after reaching the retirement age), a fair share of households are not liable to pay social security. I find that in 2011, 18.1% of households did not incur social security payments. Comparing the groups, the share of households who did not incur social security payments ranged between 9.3% for the native group and the late immigrants – other group and 44.3% for the early immigrant – other group; 24.0% of Late immigrants – FSU households did not incur any payments. These shares are directly correlated with the age of each group's household members.

The actual collection of social security payments in 2011 was ₪31,294 million (NII 2012). Social security payments of all households in the Expenditure Survey sum up to ₪14,525 million; the amount includes the payments of self employed individuals and the payments of salaried workers (i.e. the Expenditure Survey does not include the share of social security that is paid by the employers). In the same manner as Clune (1998), I attribute to employees their full social security payments that include their share of the payments, as well as their employers share. Although, in theory, employers are suppose to share the burden of social security with the employee, most economists believe that the burden of social security is passed (some say fully, others partly) on to the employee in the form of lower wages (for example, see Gruber 1995, Anderson et al. 2000, Korkeamaki et al. 2009 and Cochran et al. 2011,). So, the employers payments need to be added to each household social security payments. This is conducted as follows; the Expenditure Survey details the household income from salaried work (for each household member) and the household income from self-employed work. Applying the relevant social security employer's payment rates on the income data, I estimate the employer's payments pertaining to each household. According to the estimations, employers contributed ₪12,534 million in social security payments. I add the employer's payments to each household's social security payment (as estimated by the CBS). This brings the total social security payments according to the Income Survey to ₪27,059 million. This amount is approximately 13.5% lower than actual social security payments collection. As detailed in the mandatory health insurance section, I will inflate the payments in the Income Survey, so they would sum up to the actual collection of social security payments; I inflate each household payment proportionally by 15.7%, which is similar to the inflation factor for the mandatory health insurance payments. The resulting average annual social security payment per household is ₪14,124.

Corporate Income Tax **–** The tax is levied on the taxable income of corporations, basically the corporations' profits with some adjustments. In 2011, the tax rate was 24%, but only 38% of corporations contributed to revenues[8]. In 2011, government corporations income tax revenues totaled ₪26,961 million.

The tax is not paid by households directly, so it is harder to attribute it to households. Nevertheless, it should be attributed sensibly, due to its extent – the tax is ranked third in revenues from all taxes. As with other taxes, it should be attributed to whoever bears the burden of the tax; the direct burden falls on either share holders, workers or consumers. Due to the tax, shareholders might suffer from lower dividends or stock prices;

[8] The latest figure for the share of corporation who contributed to tax revenues is from 2009.

workers might be allocated lower wages and consumers might have to pay higher prices. But there are also an indirect effects - capital holders other than the shareholders might suffer as well; Nunns (2012) explains the mechanism as follows – "The corporate income tax initially reduces the return to capital in the corporate sector, causing investment (capital) to move to the non-corporate sector where the return is untaxed under the corporate income tax and therefore higher. This movement of capital from the corporate to the non-corporate sector drives the (pretax) return up in the corporate sector and the (untaxed) return down in the non-corporate sector. Capital continues to move until the after-tax return in the corporate sector equals the now lower (but untaxed) return in the non-corporate sector". Additionally, non-corporate workers (i.e. self employed) who do not pay the corporate income tax might suffer as well, as corporations divert investment abroad due to the corporate income tax, lowering the wages for all domestic workers.

The two comprehensive studies related to this study do not tackle the issue rigorously. Clune (1998) does not attribute corporation tax revenues to households at all, instead, he subtracts the benefits that households receive by the amount of unattributed taxes. This ignores the issue, but also implicitly assumes that corporations' tax contributions finance government services that benefit themselves only. If this is not the case, which seems the likely scenario, then part of the subtracted benefits did in fact go to households, which means that part of the benefits that governments provide to households were not taken into consideration. Dustmann et al. (2010) and Dustmann and Frattini (2013) do not ignore the issue, but attribute corporation tax revenues to households somewhat arbitrarily; they either attribute revenues to native households only, or, attribute revenues equally amongst the adult population. This obviously assumes that the distribution of company ownership amongst native and immigrant populations is equal, which is not a reasonable assumption, if left unsubstantiated.

Nonetheless, several studies on corporate income tax can suggest a more sensible attribution of corporate income tax revenues, even though they provide contrasting results due to different assumptions. In any case, all apply an open economy general equilibrium model with mobile capital, except Herberger (1962). The influential early study by Herberger (1962) finds that capital bears the full burden of the corporate tax, while consumers and workers do no bear a significant share. However, Herberger examined a closed economy without capital mobility, as is the case today in general, and in Israel specifically. A later study by the same author (2006) concludes that labor, not capital, bears the full cost. Randolph (2006) finds that for the Untied States, domestic labor bears approximately 70 percent of the long run burden of corporate income tax; domestic owners of capital bear approximately 30 percent of the burden; the author also find that the smaller the economy, the higher the share that labor bears. Gravelle et al. (2001) reach similar figures as Randolph, without specifying for the size of the economy.

Following these results, studies that had to attribute corporate tax revenues to households applied different shares to labor and capital. For example, in a 2001 study, the Congressional Budget Office, which wrote several reports on the subject, allocated the full burden of corporate tax on owners of capital in proportion to their capital income. In a 2013 study by the same authors, they said that due to the reevaluation of research, it now allocates 75% of corporate income tax revenues to owners of capital and 25% to workers in proportion to

their labor income. Nunns of the Tax Policy Center (2012), a think-tank associated with the Brookings Institute, also come to similar conclusions and accordingly, the Tax Policy Center now allocate 80% of corporate tax revenues to capital and 20% to workers. Chamberlain et al. (2007) use the Randolph figures in one scenario, and attribute the full corporate income tax revenues to owners of capital in another scenario.

In light of these findings, related research and the fact that Israel is a small economy I study two scenarios. For the baseline scenario, I attribute 75% (₪20,221 million) of corporate tax revenues to households in proportion to their capital income (out of the total capital income) and 25% (₪6,740 million) of corporate tax revenues to households in proportion to their labor income (out of the total labor income). For the alternative scenario, I consider that, in contrast to the United States, Israel is a very small economy, so corporate income tax leads to a larger diversion of investments abroad, resulting in a larger reduction in domestic wages. Accordingly, I attribute 50% (₪13,480.5 million) of corporate tax revenues to households in proportion to their capital income and 50% of corporate tax revenues to households in proportion to their labor income.

When considering the attribution of corporate income tax revenues according to the ownership of corporate capital, foreign ownership must be taken into consideration; foreign owners of corporations who pay corporate income tax in Israel, also bear the tax burden. According to the CBS (2014f), approximately 10% of the output in 2011 was produced by foreign-owned corporations – companies in which the majority of stocks are owned by foreigners. Obviously, a share of these companies' stocks are owned by Israelis; also, a share of the companies classified as Israel owned, because the majority of their stocks are owned by Israelis, is owned by foreigners. Nevertheless, because there is no exact data, I take the 10% figure as a benchmark for the share of capital owned by foreigners.

The Expenditure Survey details each household's income from capital, by type of capital and from labor. For the first scenario, first, I sum up each household's capital income (the items "income from rent and property" and "income from interest and dividends" as applied in the Congressional Budget Office (2013)) and apply the relative attribution method, so that each household's share of corporate income tax revenues (the amount burdened on capital after subtracting 10% due to foreign capital ownership - ₪18,199 million) is estimated to be equal to his share in the overall capital income of all households. Then, I do the same with each household's labor income, so that each household's share of corporate income tax revenues (the amount burdened on labor - ₪6,740 million) is estimated to be equal to his share in the overall labor income of all households. Lastly, I sum up each household's contribution due to his capital and labor incomes. The resulting average annual corporate income tax contribution per household is ₪11,256. For the second scenario the attributed corporate tax revenues are ₪12,132 million and ₪13,481 million due to capital and labor, respectively. The resulting average annual corporate income tax contribution per household is ₪11,560.

Capital Markets and Dividend Deductions – The government levies a tax on the income from securities – interest, dividend, capital gain (the appreciation of the price of a capital market instruments such as stocks and bonds), etc. In 2011, the tax levied on most individuals and most securities was 20%. Two related revenue sources are dealt with separately; specifically with respect to dividends, individuals who own more than 10% of

a company (i.e. major stakeholders), are liable to a special tax rate of 25%; revenues stemming from this tax are attributed in the next section – "corporations managers". Second, companies are liable to a 24% tax; revenues stemming from this tax are included in the "corporate income tax" section, as detailed below (Israel Government Revenues Administration 2011).

In 2011, government revenues from capital markets and dividend deductions totaled ₪6,688 million. The Expenditure Survey contains an item detailing the income of households from the relevant income sources. But, attributing the tax revenues according to each household's capital income, as it appears in the survey, has a major disadvantage. Studies have concluded that incomes are under-represented in household surveys, especially very high incomes. Moreover, it seems like capital income is especially under-reported; this is logical, considering the fact that high income households hold a significant share of capital (Sabelhaus et al. 2013, Amarante 2013 Hurst et al. 2014 and Moore et al. 2000 who review the subject); for example, with respect to Israel, Trajtenberg (2011) reports that in 2009, the CBS found that the top decile owned 29% of capital, more than the combined total of capital owned by the lowest 6 deciles. The author writes that this figure is probably even lower than the actual figure due to the underreporting of capital income in CBS surveys; the corresponding figures for other countries range from 35% to 70%. This underreporting of labor income might lead to distortions of tax revenues items that were attributed using labor market income (such as income tax revenues and corporate income tax revenues); the distortion might over-attribute revenues to the groups with lower incomes, such as the late immigrants from the FSU, and under-attribute revenues to the groups with higher incomes, such as natives, since the absence of higher income in the surveys increases the share of income that appears to be held by lower income groups (assuming that the missing higher incomes mainly come from the higher income group). However, the distortion to tax revenue items that were attributed according to the households' capital income might be worse, since the underreporting of capital income is more acute.

It seems like capital incomes were indeed underreported in the Household Expenditure Survey for 2011. The Israel Government Revenues Administration (2011) estimates that in 2008, which was a very bad year for stock markets in general, and for the Israeli stock market in particular, households' income from interest, dividends and securities capital gains was ₪19,500 million[9]; the resulting taxes would have to be approximately ₪4,000 million, using the average 20% tax rates applicable to most transactions. In 2011, which is three years on, years in which the economy grew at a steady rate, and subsequently so did the stock market, households' income from these sources is expected to be considerably higher (data for 2009 onwards is unavailable, so had to be estimated). Nonetheless, summing the relevant items in Expenditure Survey reveal that households' income from these sources totaled a mere ₪4,033 million – around 20% of the estimated securities income in 2008, and likely even a lower share of income in 2011.

This poses a problem when attributing tax revenues according to the capital income that is detailed for every household in the Expenditure Survey; it could either be that households do not report their capital income, or that households report a much lower capital income than their actual capital income. Other studies do not

9 Not including the items entitled "general capital gains" (₪9,000 million) and "foreign capital gains" (₪6,500 million). including these would even strengthen the argument.

discuss this shortcoming at all. Clune (1998) uses the Census Bureau's estimation of the income tax contribution of each household (these include capital gains tax contributions); the OECD (2013) also attribute these taxes to households as part of the income tax attribution to households, but do discuss the attribution criteria. Dustmann et al. (2010) and Dustmann and Frattini (2013) attributes revenues to all households in proportion to their share in the population. This assumes that each person in the economy had an equal capital tax contribution; these blatantly contrast studies, such as the study mentioned above, on the accumulation of capital at the top deciles.

Despite the shortcoming, I attribute these revenues to each household in proportion to its relevant capital income (only from interest, dividends and securities capital gains). Although underreported, if the extent of underreporting is distributed equally amongst the population groups, the shortcoming would be tempered. When comparing population groups, the importance lies in the distribution of reported capital income between groups, and not necessarily the scale of the reported capital income; this means that if the underreporting preserves the relations between the shares of capital income of each group, then the shortcoming is not as bad. In addition, the alternative to attributing the tax revenues according to actual reported capital income, would be to attribute them arbitrarily, such as attributing them equally to the entire population, as Dustmann and Frattini (2013) did, but I feel this is a worse scenario, as explained above. The capital income reported in the Expenditure Survey for households is still more revealing than no data at all, so should be used in the attribution. The results of the attribution are an assurance that this method is better than arbitrary attribution, as the results mostly correlate with the literature; the relevant capital income is concentrated in the groups whose income is higher (population groups 2,4,5 and 6).

An additional problem arises when considering household's dividend income. Individuals who are major stakeholders in the company that pays them a dividend, are liable to a 25% tax rate; the revenues stemming from their contributions appear under the "corporations managers" revenue item; other individuals are liable to a 20% tax; the revenues stemming from their contributions appear under this revenues item. Unfortunately, either the Expenditure Survey, nor the Income Survey, detail whether the dividend was granted to a stakeholder or not. A possible identification of stakeholders could be households' self-employment income; stakeholders, who are part of full owners of businesses often earn their income as a self-employment income, rather than a salaried income. Therefore, I distinguish between the dividend income of households with a positive self-employment income and the dividend income of households without a positive self-employment income. Revenues stemming from the former are attributed in the next section ("corporations managers"), while revenues stemming from the latter are attributed in this section. Certainly, some households with a positive self-employment income do not contain a stakeholder, or it may even by the case that the dividend was granted to a household member who is not a stakeholder, although one of its members is a stakeholder. Conversely, some stakeholders might reside in household that do not receive any self-employment income. In both cases, households will be attributed a contribution that might be different from their actual contribution. Nonetheless, without any other information, this distinction might be second best. Moreover, only households who receive a dividend income are attributed either a "capital markets and dividend deductions" tax contribution or a "corporations managers" tax contribution; because these households indeed earned a dividend income, they

should be attributed a contribution, so the bias might only stem from the scale of the attribution, not from households being attributed tax contributions which they were not responsible for.

Before attributing the tax revenues to households, the tax revenues that were paid by foreigners and businesses should be subtracted from the total revenues. Following the discussion in the "corporate income tax" section above, I assume that 10% of revenues (₪669 million) stemmed from foreign owners of capital; these will be attributed in the "unattributed taxes and fees" section. With regard to the taxes on the securities income of businesses, they are included in the revenues that were grouped under "corporate income tax" (businesses pay the corporate income tax of 24% on their capital income), so these were already attributed in the respective section. Overall, Israeli households are attributed ₪6,019 million in capital markets and dividends taxes revenues. I sum up each household's relevant securities income (as mentioned, excluding the dividend income of households with a positive self-employment income) and apply the relative attribution method. The resulting average annual capital markets and dividends deductions contribution per household is ₪2,717.

Corporations Managers – As discussed in the former section ("capital markets and dividend deductions"), this item refers to revenues stemming from stakeholders in businesses who are liable to a 25% tax on their dividend income. In 2011, revenues from this tax totaled ₪8,702 million. The Expenditure Survey details the dividend income of households. As discussed above, I isolate households who receive both a self-employment income and a dividend income, which I identify as households containing a stakeholder. As with income in general, and capital income in particular, this income source is also grossly underreported; a dividend income of only ₪897 million is reported for relevant households, while in reality, considering the 25% tax rate, the taxed dividend income should amount to more than ₪30,000 million. The meanings of this underreporting were discussed in the "capital markets and dividend deductions" section.

Following the discussion in the "corporate income tax" section above, I assume that 10% of revenues (₪870 million) stemmed from foreign owners of capital; these will be attributed in the "unattributed taxes and fees" section. The remaining revenues (₪7,832 million) are attributed to Israeli households. I sum up the dividend income of households who also receive self-employment income, and attribute the revenues to these households using the relative attribution method. The resulting average annual corporations managers contribution per household is ₪3,535.

Real Estate Taxes – The government levies specific taxes on the purchase and sale of real estate. Revenues stemming from these taxes totaled ₪7,303 million in 2011. The amount does not include revenues that came from the value added tax levied on real estate purchases, which will be discussed separately. Dustmann et al. (2010) and Dustmann and Frattini (2013) attribute these revenues according to each group's share in the number of households; this obviously ignores actual purchases or sales of real estate, implicitly assuming that the different groups purchase and sale the same number of apartments and at the same value, which is unreasonable if unsubstantiated. In contrast, Clune (1998) attributes real estate taxes to households

according to the self-reported payments of households with some adjustments. Unfortunately, for Israel, these are unavailable, so each household's contribution must be estimated as follows.

Property Tax – The tax was levied on the value of idle land and was mostly borne by businesses. The tax was cancelled in 2000. The revenues in 2011 (₪81 million) are residual revenues from previous years (Israel Government Revenues Administration 2011). These revenues are dealt with in the "unattributed taxes and fees revenues " section below.

Purchasing Tax – The tax is levied on the purchasing price of the real estate (apartments, agricultural farms, commercial buildings and lands); With regard to apartments, it applies to all purchased apartments – new and second-hand. The tax rate is graded and depends on whether the apartment is the first that the buyer purchases, or whether he already owns other apartments. For buyers who purchase their first apartment, apartments that cost less than ₪1,350,000 are exempt; apartments that cost between ₪1,350,001 and ₪1,601,210 are liable to a 3.5% tax; apartment that cost more than ₪1,601,210 are liable to a 5% tax. For buyers who purchase an additional apartment there are no exemptions; buyers pay a tax rate of 5% from the first Shekel and the tax rate increases with the price of the apartment up to a tax rate of 7% for apartments that cost more than ₪3,000,001. Immigrants who moved to Israel seven years previous to their apartment purchase pay a 0.5% tax on apartments that cost less than ₪1,463,035 and a 5% tax on apartments that cost more than this amount. The tax rate on other real estate (commercial buildings and land) is 5%, regardless of its purchase price (Israel Government Revenues Administration 2011).

Out of the total purchasing tax revenues in 2011 (₪4,126 million)[10], ₪2,148 million stemmed from apartment purchases, ₪1,314 million stemmed from land purchases and ₪664 million stemmed from commercial buildings purchases (Israel Government Revenues Administration 2013). Revenues from apartments purchases are obviously attributed to households. Land purchases are made by both households and businesses households and businesses. In 2009[11], out of the total value of purchased land (₪18,800 million), households were responsible for ₪8,100 million (43.1%) (Israel Government Revenues Administration 2011). Because the tax rate on land is fixed and applies for both households and businesses, it can be inferred that households also contributed 43.1% of land purchasing tax revenues. I apply this proportion to the 2011 amount to result in revenues of ₪566 million to be attributed to households[12]. Revenues from commercial buildings purchases are not attributed to households. Overall, ₪2,714 million in purchasing tax revenues are attributed to households.

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[10] Different parts of the General Accountant (2011) report describe slightly different real estate tax revenues figures. The figures used were the ones reported in the main section of the report – the section detailing the overall tax revenues by type.

[11] The latest data was for 2009.

[12] One might suggest that the land purchase revenues from businesses (most of which are construction companies who subsequently sell their apartments to households) should also be attributed to households. But, when households purchase an apartment, a certain proportion of the price accounts for the purchasing tax paid on the land. Attributing to households the purchasing tax that was paid by construction companies on the land would result in a double purchasing tax revenue attribution to households – both on the land and on the apartment they purchase.

In attributing revenues to Israeli households, revenues stemming from the purchases of foreign residents should be subtracted from the above amount. In 2011, 4.1% of apartments were purchased by foreign residents with an average purchase price of ₪1,929,427 – 77% higher than the average purchasing price of an apartment by Israeli residents (₪1,090,072). Not only do foreign residents purchase considerably higher priced apartments, they are also liable to higher taxes – those that are levied on buyers who already own other apartments (i.e. no exemptions) (Israel Government Revenues Administration 2013). The tax on the average apartment purchased by foreign residents is ₪115,766, while the tax on the average apartment purchased by Israelis is between ₪0 (for buyers who purchases their first apartment, who are the majority of buyers) and ₪65,404 (for buyers who already own other apartments). Therefore, I prudently estimate that 10% of revenues from apartment purchases are attributed to foreign residents (₪215 million). This leaves ₪2,499 million to be attributed to Israeli households.

The Expenditure Survey details household expenditure on the purchase of apartments. In attributing revenues to households, due to the different tax rates, households who purchase their first apartment must be distinguished from households who already own another apartment and purchase an additional one. In 2011, of 86,440 apartments purchased, 21,887 (25.3%) were bought by buyers who already own an apartment, but these purchases contributed 63.6% of the tax revenues on apartments (Israel Government Revenues Administration 2013). I distinguish these households in the Expenditure Survey as follows; the Expenditure Survey details household income from "letting a dwelling or a room" and from "other property". I assume that households that earn an income from property and have purchased an apartment are households who already own an apartment and have purchased an additional one, thus, are liable to the higher tax rates. Of course, this assumption has limitations; households who purchase an apartment and rent it out, while they live in an un-owned apartment (for example, a rented apartment) are considered a household that has purchased a second apartment, while in reality, its their first. On the other hand, households who purchase a second apartment and do not rent it out during the survey year are considered a household that has purchased its first apartment, while in reality, its their second. Nonetheless, I think that the distinction holds true for the most common case, in which investors buy an additional apartment in order to rent it out[13]. I find that, according to the Expenditure Survey, of 71,590 household who have purchased an apartments, 12,467 (17.4%) are households that earn property income and have purchased an apartment; this share is not far off from the actual share of 'investor" buyers.

As detailed previously, new immigrants enjoy reduced tax rates in the seven years following their immigration. The immigration year of immigrates who immigrated after 2001 is not indicated in the surveys, so immigrants who enjoy reduced tax rates could not be identified. This is not an issue, since in the survey, only one household of new immigrants (groups 1 or 3) was estimated to be liable to any tax payments; i.e. beside that

[13] There isn't a single instance in the Expenditure Survey in which a household has both purchased and sold an apartment during the survey year. So, if a household has purchased an apartment with the purpose of selling it, it held it for at least a year. It is highly unlikely that a household will purchase an apartment in order to sell it and hold it for more than a year without renting it in the meantime (until its value appreciates). This means that the probable scenario for buyers of a second apartment is renting it out. This grants a higher validity to the distinction of households in the Expenditure Survey that was carried out.

household, none of the households purchased apartments that cost more than ₪1,350,000, or purchased an apartment that cost less but was a second apartment.

After distinguishing between the two types of households, the tax contribution of each household is estimated according to the statutory tax rates and the type of household. This yields a total purchasing tax revenues of ₪1,205 million, which is about half of the actual revenues. This might stem from my underestimation of households who purchase a second apartment, thus paying the considerably higher taxes on all their apartment purchases, not just on apartments that cost more than the tax threshold. So attributed tax revenues equal actual tax revenues, the estimated tax contributions of each household are inflated proportionally by 107%. The resulting average annual purchasing tax contribution per household is ₪1,128.

Appreciation Tax – The tax is levied on the capital gains of from real estate (the difference between the purchase and the sale price) and is paid by the sellers. The tax rate differs according to the real estate purchasing year and the whether the seller is an individual or a corporation. For capital gains that were accumulated before 2001, the tax rate for individuals ranged between 12% and 50%; the tax rate on capital gains accumulated from 2001 onward is 20%. There are numerous exemptions that result in a reality where most apartment are not taxed; most importantly for households is an exemption for households who sell an apartment once every four years or more (Israel Government Revenues Administration 2011).

Out of the total appreciation tax revenues in 2011 (₪3,076 million), ₪253 million stemmed from the sale of apartments, ₪1,977 million stemmed from the sale of land and ₪846 million stemmed from the sale of commercial buildings (Israel Government Revenues Administration 2013). Revenues from the sale of apartments are obviously attributed to households. Regarding revenues from the sale of land, although households are responsible for almost half the value of purchased land (see the purchasing tax section), the Israel Government Revenues Administration (2011) reports that the purchases are intended for the purpose of building homes; i.e. not for the purpose of investing in land until its value appreciates and then selling it; this does not generate appreciation tax revenues, so I do not attribute any land appreciation tax revenues to households. Revenues from commercial buildings are not attributed to households. Thus, ₪253 million appreciation tax revenues are attributed to households. As before, I estimate that 10% of appreciation tax revenues are attributed to foreign residents, leaving ₪228 million to be attributed to Israeli households.

There are several difficulties when attributing these revenues to households. Even if it is assumed that all apartments sold had gained value since there purchase (thus, are liable to an appreciation tax), there is no data on the apartment's purchase year, which considerably affects the effective tax rate on the capital gain – as mentioned, these could range from 12% up to 50%. Secondly, the only available data is the apartment sale price, but what is relevant for tax estimation purposes is the gain that its value has made since its purchase. In addition, the many exemptions could not be identified with the data available in the Expenditure Survey data; without being able to distinct exempt households from non-exempt households, I estimate the tax contributions of all households that sold an apartment, applying the relative attribution method. This means that even if a household that sold an apartment is exempt, it will be considered as if it made a tax contribution. Nonetheless, as I am

interested in between-group differences, it is sensible to assume that if a group sold more apartments and at higher prices, its share in actual revenues will be higher; this is reflected in the relative attribution method. The resulting average annual appreciation tax contribution per household is ₪103.

Sell Tax – The tax was levied on the value of the real estate and was paid by the seller. The tax was cancelled in 2007. The revenues in 2011 (₪20 million) are residual revenues from previous years (Israel Government Revenues Administration 2011). These revenues are dealt with in the "unattributed taxes and fees revenues " section below.

Value Added Tax – The tax is levied on most household consumption, public consumption, public investment, private real estate (the purchase of new apartments, independent home construction and renovations) and other consumption (consumption of tourists, financial institutions, etc.). The tax rate is fixed at 16% of the sale price, regardless of the good type. In 2010, household consumption was responsible for 64.6% of tax revenues; real estate was responsible for 10.2% of tax revenues. The remaining categories were responsible for 25.2% of tax revenues. Applying these proportions to the total 2011 tax revenues (₪68,754 million) yields that household consumption was responsible for ₪44,415 million of tax revenues, private real estate was responsible for ₪7,013 of tax revenues and other categories were responsible for ₪17,326 million of tax revenues. Revenues stemming from household consumption and private real estate, totaling ₪51,428 million are attributed to households, while the rest, having been paid by elements other than households (including tourists), are not (these are attributed in the "unattributed taxes and fees" section).

The Expenditure Survey details household expenditure on nearly 900 consumption goods and service categories; these total ₪280,299 million[14]; adding apartment purchases, purchases of vehicles that cost more than ₪95,000 (see vehicle purchase tax section) and renovation expenses, all of which are considered "investment goods", but are taxed, raises the total to ₪349,852 million. To yield the taxable expenditure, first, I subtract household expenditure on consumption abroad (₪5,715 million, as detailed in the "expenditures of Israelis abroad" section) which is not taxed. Second, I subtract the expenditure on categories that are not taxed, the two largest ones being monthly housing rent and fresh fruits and vegetables[15]. Third, there is one city in Israel, where value added tax is not levied on most goods and services that are taxed in other parts of the country – Eilat; residents of the city, as well as Israeli tourists, enjoy this exemption. The expenditure of Israeli households on goods and services specifically bought in Eilat could not be distinguished. But, the expenditure of households who are based in Eilat could be distinguished, as the Expenditure Survey details each household's residence city. Because not all goods and services are exempt, and because part of their expenditure was probably bought outside the city, I assume that only 50% of the taxable expenditure of households based in Eilat

[14] The amount pertains to monetary consumption; i.e. consumption for which money was spent. It does not include in-kind and imputed consumption of housing and vehicles, which is not relevant when estimating value added tax revenues.

[15] The other categories are – "tips", "government taxes", "municipal taxes", "domestic help", 75% of "organized travel abroad" and "other travel abroad", as international flights are not taxed, but travel agencies and tour organizer services are, "organization dues and donations", "motorcycle registration", "car registration", "registration and ownership transfer fee", "fines", "customs fees", "purchase tax for a non-residential apartment", "radio and television fees", "car radio fee".

was taxed. Lastly, I subtract the expenditures on financial services (insurance[16], banks, etc.) and services provided by non-profit organizations (most health and education expenses); the reason will be explicated in the following section.

A difficulty that arises from the data is the fact that some of the expenditure detailed in the Expenditure Survey are the purchases of second hands goods which are not taxed – including apartments which is a significant component of the expenditure. There is no way of knowing which purchases were of new goods and which were of old goods. Therefore, I am forced to ignore the issue and assume that all taxable expenditure was on new products. This might overestimate the tax contributions of households who tend to purchase a higher share of second hand-goods, probably those with a lower income (such as late immigrants from the FSU), because their purchases of second-hand goods are considered as if they were taxed, although in reality they were not.

Subtracting the above expenditures results in a total taxable household expenditure of ₪272,654 million. Multiplying the expenditure of each household by the 16% tax rate yields estimated tax revenues of ₪43,625 million – 15.2% lower than actual revenues. As before, in order to equate total attributed revenues with actual total revenues, I inflate the estimated tax contribution of each household by 17.9%. This yields an average annual value added tax contribution per household of ₪23,212.

Financial Institutions and Non-Profit Organizations Value Added Tax - Services provided by financial institutions (insurance companies, banks and investment companies.) and non-profit organizations (including the government and local authorities) are not taxed like other goods and services– as a share of their sale price. Instead, the value added tax is levied on the wages at these institutions; wages at financial institutions were taxed 16% and wages at non-profit organizations were taxed 7.5%. The added value that these institutions generate is the difference between their revenues and their inputs; it equals wages and profit. In financial institutions, value added tax is levied on the wages and corporation income tax is levied on the profit; in non-profit organizations, value added tax is levied on the wages and there is no profit to be taxed (Israel Government Revenues Administration 2013). Therefore, taxing wages realizes the notion of taxing the institutions' added value in the same manner as the regular value added tax. This means that the purchase of services from these institutions and organizations by households do not contribute to the regular value added tax revenues detailed previously. Nonetheless, services sold are taxed, just in a different manner, as explicated, so the households who purchase these service should be attributed their contributions.

In 2011, revenues from the value added tax on financial institutions totaled ₪2,450 million (Israel Government Revenues Administration 2013). The revenues attributed to businesses should be subtracted to yield revenues that should be attributed solely to households. Regarding banks and investment companies, the Bank of Israel (2011) reports that in 2010, 47% of financial and operational revenues and 21% of net profit

[16] The share of the insurance expense that pays for the insurance agency is taxed regularly; the part that pays the insurance premium is taxed according to the financial institutions value added taxation (see section). I estimate that 25% of insurance expenditure pays for the former and 75% pays for the latter.

came from households and private banking[17]. Regarding other financial institutions – insurance companies, breakdown by sector is unavailable; however, due to the nature of their services – vehicle, health and property insurance, it can be sensibly surmised that the majority of their revenues came from private households. Without any additional data, I assume that 50% (₪1,225 million) of financial institutions value added tax revenues came from households.

Attributing these revenues to households requires estimating each household's expenditure on financial services. The Expenditure Survey details household expenditure on insurance[18]; it also details household consumption of financial services provided by banks and investments companies[19]. Because the expenditure is not directly taxed, it is not possible to estimate the tax contribution of each household. Thus, I sum up the expenditure of each household on these two components and apply the relative attribution method, assuming that a household that had a larger share in total financial service consumption, also contributed a larger of indirect tax revenues. The resulting average annual financial institution value added tax contribution per household is ₪553.

Revenues from the value added tax on non-profit organizations totaled ₪8,050 million (Israel Government Revenues Administration 2013). According to the CBS (2014e), in 2011, non-profit organizations beside the government and the local authorities paid ₪46,342 million in labor costs which are liable to a 7.5% value added tax[20]; i.e., they contributed approximately ₪3,475 million in value added tax revenues. The remaining amount (₪4,575 million) came from taxation of the government and local authorities, which will be dealt with in the "unattributed tax and fees revenues " section below. Non-profit organizations apart from the government and local authorities pay the value added tax on wages, that are made possible in part because of household purchases of their services, thus part of their added value tax contributions are attributed to households (in the same manner that value added purchases of regular goods are attributed to the households who purchased them). In contrast, the value added tax contribution of the government and local authorities does not stem from household purchases, it stems from households taxes which are comprehensively attributed to households throughout this chapter.

Non-profit organizations whose taxes will be attributed to households are mainly education and health organizations; these accounted for 69.9% of total revenues in the sector (₪111,440 million); they include schools, universities, and hospitals. Other sectors account for the rest – culture, religious, social service, etc. 36.4% (₪40,552 million) of their revenues came from the sale of services to households and donations of households[21]. The rest came mainly from government allowances (on services such as healthcare that will be

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[17] Private banking refers to the services rendered to wealthy private individuals.

[18] Household expenditure on insurance is the summation of all items in the Expenditure Survey that refer to insurance; these include insurance of vehicles, apartments and appliances as well as private health insurance, risk and accident insurance, life insurance and senior employee insurance.

[19] Household expenditure on financial services is the summations of the following items – "bank services", "debt mobility" (borrowing and repayment) and "financial savings" (includes mortgage payment, securities purchases, etc.) excluding "accumulated life insurance premiums" and "payments to senior employee insurance" which are counted towards expenditure on insurance.

[20] Certain low salaries are exempt, but data on the extent of exemption is unavailable.

[21] CBS (2014h) details the breakdown of donations value by type (households, businesses and foreigners). 29.3% of donations value came from household donations. I apply this proportion to the revenues of non-profit organizations that stemmed from "donations of

attributed to households separately). So, applying the proportion of non-profit organizations revenues that came from households to their total value added tax revenues results in ₪1,265 million to be attributed to households.

In attributing these revenues to households, first, I sum up each household's expenditure on services provided by non-profit organizations; these include education costs, public healthcare costs, culture costs, etc.[22]. As with the attribution of the financial institutions revenues, I apply the relative attribution method, for the same reason stated above. The resulting average annual non-profit organizations value added tax contribution per household is ₪571.

Employer Tax – The tax was levied on the wages paid by local authorities and non-profit organizations; the tax rate was 4%. The tax was cancelled in 2008 (Israel Tax Authority 2014a); revenues in 2011 (₪350 million) are residual revenues that were paid on previous year's tax assessments. The revenues that came from local authorities should be attributed to households; the households pay taxes to the local authority which in turn, transfers some of the amount to the government as employers tax, so the households contribute to the government indirectly. As for the non-profit organizations tax contributions, as detailed in the last section, the share of their contributions that should be attributed to households is the share of the non-profit organization's revenues that were due to households' purchases and donations (36.4%). There is no data on how revenues break down between local authorities and non-profit organizations; assuming that half of revenues came from the former, while the rest came from the latter, results in ₪238.7 million to be attributed to households (₪175 million from local authorities, ₪63.7 million from non-profit organizations). Attributing the revenues that came from local authorities equally amongst households and the revenues that came from non-profit organizations using the method applied for non-profit organizations value added tax (considering each household's expenditure on services provided by non-profit organizations), results in an average annual employer tax contribution per household of ₪108.

Excise Taxes – The following taxes are considered excise taxes – import excise tax, local excise tax, fuel tax and tobacco tax. In 2011, these totaled ₪31,298 million. Excise taxes are mainly levied on goods whose consumption generates externalities (such as polluting cars), so the buyer incurs part of the extra costs associated with the consumption of the good; it is levied on goods regardless of the country of manufacturing. The goods that generate the highest excise tax revenues are fuel, cars and its parts and cigarettes. These generate 96% of the excise tax revenues (Israel Government Revenues Administration 2013). Excise taxes are also levied on several other goods for fiscal reasons. The excise taxes are levied on the specific goods in addition to the value added tax levied on all products, and customs duties which are levied on certain imported goods, both of

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households and businesses" to yield the revenues that stemmed from household donations. Then, adding this figure to non-profit organizations revenues that stemmed from the sale of services to households.

[22] The following Expenditure Survey items were included – "Supplemental insurance from health maintenance organization (Kuppat Holim)", "expenditure on health services", "medicines through health maintenance organization (Kuppat Holim)", all items that include medicines with prescription, education items from kindergarten to academic studies, "subscription to cultural events", "tickets to cultural events", "social organization fees", "subscription for museums", "subscription to the nature and national park protection authority", "entrance to museums", "funeral and burial expenses" and "donations to organizations and institutions".

which will be discussed separately. The fuel and tobacco tax revenues from local production are under their own items – Fuel Tax and Tobacco Tax, while the tax revenues on imported fuel and tobacco products are under the general item – Import Excise Tax. This holds true for all other products, whose local production are taxed under the item – Local Excise Tax and imported goods are taxed under the item – Import Excise Tax.

The following will describe the attribution of excise tax revenues to households, by goods, as the method differs.

Fuel Taxes – The tax is revised several times a year according to the then-current tax policy and the consumer price index. In 2011, the tax on petrol ranged between ₪2.65 and ₪3.09 per liter and the tax on diesel ranged between ₪2.76 and ₪2.83 per liter[23]. Revenues from fuel taxes amounted to ₪16,852 million. Of the total amount, ₪15,118 million were tax revenues from local fuel production (these tax revenue appear under "Fuel Tax" in the Israel Tax Authority reports, as in Table 4), while the rest - ₪1,734 million were tax revenues from imported fuel products (these tax revenues are part of the item entitled "Import Excise Tax" in Table 4). Tax revenues from petrol and diesel (excluding diesel used to generate power) were approximately ₪9,822 and ₪6,175 million respectively[24]. The remaining ₪855 million are revenues from all other fuel products which are most likely not used by households in estimable amounts (coal, naphtha, etc.) (Israel Government Revenues Administration 2013). Fuel taxes are also levied on cooking gas, but revenues from these are negligible, so will not be dealt with[25].

In estimating the overall fuel tax contributions that are attributed to households, one must subtract the contributions of elements other than households – tourists who rent cars, company cars, etc. In 2011, 2,164,385 cars and 117,254 motorcycles were registered in Israel in addition to 401,548 other types of vehicles that were likely not used by households (trucks, buses, taxis and other "special vehicles") (CBS 2012b). Among cars, 1,831,562 were owned by households, 201,401 were leasing cars, 99,903 were company cars and 31,519 were cars used for rental and tourism (CBS 2012a). Leasing cars are mostly leased to households through the employer of one of the household members. Fuel costs for the cars are sometimes paid by the person who leased the car, and at other times, by the company, who bears the full cost or part of the cost. Without knowing the proportion of fuel cost bearing, I assume that in half of the cases (100,700 cars) the person who leased the car bears the fuel cost, and in half of the cases, the company bears the full cost. This brings the total number of cars, for which the household bears the fuel costs, to 1,932,262, in addition to 111,391 motorcycles[26]. Of the cars, 96.5% (1,864,014) are estimated to be fueled by petrol, 3.0% (58,724) by diesel and 0.5% (9,524) by gas or

[23] Taxes on other fuel products such as or coal will not be detailed, as they are less relevant for households.
[24] Tax revenues that were passed on to the Palestinian Authority, due to their own consumption, were deducted, resulting in tax revenues of the Israeli government exclusively.
[25] The Israeli Government Administration report (2013) details the revenues from several fuel products grouped together, part of which is liquefied petroleum gas, which is also used as cooking gas, the others being fuel products used primarily in industry. In 2011, tax revenues on these fuels amounted to ₪222 million. As stated, only part of this amount is attributed to liquefied petroleum gas and only a small part of petroleum gas usage is cooking oil (Milrad 2014). Hence, I assume that tax revenues from cooking gas usage are negligible.
[26] There is no data on the share of motorcycles that are owned by households of the total number of motorcycles (117,254). I assume that 95% of motorcycles are owned by households, while the rest are owned by businesses and the government (police for example). As their total number is small, and their average KM travelled is significantly lower than private cars, this assumption isn't too consequential.

electricity. All motorcycles are fueled by petrol[27] (CBS 2014a). To obtain the share of fuel tax revenues that can be attributed to households exclusively, I multiply the number of cars in each category by the average number of Kilometers (KM) that were travelled by the average car in each category in 2012 (no data on 2011), as estimated by the CBS (2014a). Then, I divide the result by the total number of KM that were travelled by all vehicles in each type of fuel category. For petrol, I find that vehicles (cars and motorcycles) for which households bear the cost of fuel, travelled 30,603,673 Thousand KM in 2011[28]. Petrol fueled vehicles for which elements other than households bear the fuel cost travelled 4,430,143 Thousand KM in 2011. Therefore, I conclude, that households accounted for 87.4% of the distance travelled by petrol fueled vehicles in 2011. Accordingly, I estimate that households contributed the same proportion of the tax revenues from petrol – ₪8,580 million. The same exercise is done for diesel fueled cars; I find that vehicles (in the case of diesel fuel – only cars) for which households bear the cost of fuel, travelled 1,421,121 Thousand KM in 2011[29]. Diesel fueled vehicles for which elements other than households bear the fuel cost travelled 11,796,025 Thousand KM in 2011. Therefore, I conclude that households accounted for 10.8% of the distance travelled by diesel fueled vehicles in 2011. Accordingly, I estimate that households contributed the same proportion of the tax revenues from diesel – ₪923 million[30]. So, overall tax revenues on fuel that are attributed to households are ₪9,503 million. The remaining fuel tax revenues stem from either cars that are not used by households, or from fuels not used by households. The calculations ignored cars fueled by gas, as their number are negligible (about 0.5% of the total number of cars), and due to the lack of data on fuel tax revenues from these types of cars.

These estimated households tax contributions need to be assigned to each of the households according to their share of the contribution. Clune (1998) does this by calculating the average tax contribution per car (based on total tax revenues and the total number of cars) and then, assigning the same average to households according to the number of cars they own, which is based on age and nativity averages from 5 years prior as well. This of course, ignores the households' actual fuel expenditures, as well as whether they even own cars, as it is based on prior averages. Dustmann et al. (2010) and Dustmann and Frattini (2013) apply "effective expenditure rates by household income decile" (taken from other studies) for each household, which not only ignores actual use of each taxed product, but also ignores whether the household even owns the taxed product, such as cars. Also, it assumes that consumption within deciles are similar for natives and immigrants, which is

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[27] Data regarding the type of fuel used for the different types of vehicles (cars, trucks, etc.) is only available for the year 2012. Moreover, data on the type of ownership of the vehicle is not crossed with data on the type of fuel. I assumed the same 2012 proportions for the type of fuel, within the types of ownership. For example, 96.5% of private cars in 2012 were fueled by petrol (regardless of ownership), so I assumed that the same proportion held true for private cars in 2011 for which the households bear the full cost of fuel (i.e. all the cars owned by households and half the leased cars).

[28] Private cars fueled by petrol travelled an average annual of 16 Thousand KM. Multiplying it by 1,864,014 cars yields 29,824,224 Thousand KM. Motorcycles fueled by petrol travelled an average annual of 7 Thousand KM. Multiplying it by 111,391 motorcycles yields 779,737 Thousand KM, to a total of KM travelled by petrol fueled vehicles that are owned by households to 30,603,961 Thousand KM. The same calculations are done for the vehicles owned by elements other than households.

[29] Private cars fueled by diesel travelled an average annual of 24.2 Thousand KM. Multiplying it by 58,724 yields 1,421,121 Thousands KM. No motorcycles were fueled by diesel. Thus, the KM travelled by diesel fueled vehicles that are owned by households were 1,421,121 Thousand KM. The same calculations are done for the vehicles owned by elements other than households.

[30] Government revenues from the diesel fuel tax were ₪8,583 million, but the government refunded ₪2,408 million to diesel car owners as part of one of its policies. Hence, its de facto revenues were as stated – ₪6,175 million. This policy only holds for commercial diesel car owners; private households who own diesel cars do not get refunded. So, when calculating the contribution of private households to the diesel fuel tax revenues, I calculated the 10.8% out of the pre-refunds tax revenues (₪8,583 million) which amounts to ₪923 million.

not the most judicious assumption if it isn't substantiated. The authors apply this method for all indirect taxes - fuel, vehicle, tobacco, alcohol and VAT, ignoring actual consumption of each. I take a more comprehensive approach that assigns tax contribution depending on estimated use. The household Expenditure Survey contains the spending of each household on "fuel and lubricants" and "imputed fuel on unowned car". The fuel expenditure includes petrol and diesel. I assume that the expenditure on lubricants is negligible (Beside the fact that lubricants are made of fuel products which are similarly taxed, so even if the expenditure on lubricants isn't negligible, the estimation wouldn't be far off). As previously, I also assume that half the expenditure on "imputed fuel on unowned car" stems from cars, for which the employers bear the full cost of fuel, while the other half stems from cars for which the household member bears the full cost (i.e. "unowned car" is a leasing car for which the household member pays the fuel costs). In any case, the expenditure on "imputed fuel on unowned car" is only 14% of the total expenditure on fuel, as appears in the survey.

In order to estimate each household's tax contribution I apply the relative attribution method, calculating for each household the share of its expenditure on fuel (i.e. it's expenditure on "fuel and lubricants" plus half it's expenditure on "imputed fuel on unowned car") and multiplying this share by the total tax revenues detailed above (₪9,503 million). The resulting average annual tobacco tax contribution per household is ₪4,289.

Vehicle Taxes – In 2011, the tax on private and commercial vehicles was between 72% and 83%, depending on the weight of the vehicle. The tax on cabs and buses was between 0% and 8%, depending on the weight as well. Heavy duty vehicles (those that weight more than 5,000 KG) were not taxed. Small motorcycles were taxed 40% while larger ones were taxed 72%. In order to provide incentive for the purchases of less polluting cars, the government deducts between ₪2,135 and ₪16,238 from owed taxes depending on each vehicle's pollution level. Because of this, the effective tax rate on private vehicles was only 63%. In 2011, import excise tax revenues on vehicle purchases were ₪8,352 million; customs duties revenues were ₪433 million[31]. Of the total import excise tax revenues on vehicles purchases, ₪7,808 million came from private vehicle purchases (private vehicles does not refer to the ownership of the vehicle, but to it's type. I.e. businesses also own private vehicles), ₪649 million from commercial vehicles purchases and ₪76 million from motorcycle purchases (Israel Government Revenues Administration 2013). I will assume that newly bought vehicles were purchased in the same ownership proportions as the shares of ownership on the current stock of vehicles. As detailed in the "Fuel Taxes" section, in 2011, of 2,164,385 private vehicles, I estimated that 1,932,262 (89.3%) were owned by households; of 117,254 motorcycles, I estimate that 111,391 (95%) were owned by households. Applying these ownership shares, I estimate that ₪6,971 million of import excise tax revenues on vehicle purchases came from private vehicles that were bought by households and ₪72 million of import excise tax revenues on motorcycle purchases came from motorcycles that were bought by households. Relevant data on the

[31] Customs duties revenues from vehicle purchases that are detailed in Table 1C in the appendix are different, as the CBS categorizes part of vehicle purchases as "investment goods", so customs duties revenues stemming from these are categorized under "production inputs and investment goods", not under "consumer goods - transport vehicles".

breakdown of customs duties tax revenues is unavailable, so I assume that the proportions hold true for them as well; i.e., I estimate that ₪354 million of custom duties tax revenues came from private vehicles that were bought by households and ₪4 million came from motorcycles that were bought by households. This bring the total government revenues from purchases of vehicles and motorcycles by households to ₪7,401 million.

The vehicles tax contributions are attributed to households according to survey detailed vehicle purchases. The Expenditure Survey contains two items that detail the expenditure of each household on the purchase of cars and of motorcycles. The latter contains a zero amount for all households which could not be the case, as actual tax contributions due to motorcycle purchases were not zero. This could either be a statistical misrepresentation or a typing error, be that as it may, motorcycle purchases were responsible for a mere ₪76 million (about 1%) of vehicle tax revenues. With regard to cars, the item detailing their purchases does not distinguish between used and new cars, although vehicle tax revenues are obviously levied on new cars only. According to the Israeli Tax Authority (2012a), in 2011, 98.3% of new cars purchased in 2011 cost more than ₪95,000. Regarding used cars, although no official data is available, browsing the major websites that sell used cars shows that most used cars (more than 90%) cost considerably less than ₪95,000[32]. Thus, removing the purchases of cars that cost less than ₪95,000 leaves the purchases of cars that are likely to be new. Of course, there are still households that were attributed tax contributions as if they purchased new cars, although they have purchased used cars (less than 10% of households that were attributed vehicle tax contributions); these cases could be considered as if the households share the burden of the tax on the car with its original owner. Also, there are households that were not attributed any tax contributions although they purchased a new car, as it cost less than ₪95,000 (about 12% of households that should have been attributed a vehicle tax contribution). As these are the least expensive cars, the households' tax contributions are smaller and thus, less significant than the contributions of households who have purchased cars that cost more than ₪95,000. As expected, persons who earn less, purchase less expensive cars (Israeli Tax Authority 2012a); as late FSU immigrants earn less than natives, it is sensible to estimate that they purchased less expensive cars (either new or used). Therefore, when compared to natives, their attributed vehicle tax contributions may be underestimated; first, they may have purchased more cars that cost less than ₪95,000 which means that more cars of their were not considered as contributing any tax revenues, although they should have been; second, natives purchase more expensive cars, so more of their *used* cars are considered as contributing tax revenues, although they shouldn't be. One factor that might balance that is the fact that immigrants who have to Israel within 3 years of purchasing their cars receive a tax benefit that entails a vehicle tax of 50% instead of 72% to 83%. Neither surveys contain data on the exact immigration year for immigrants who immigrated after 2001, so I could not distinguish these immigrants from the rest and attribute to them lesser tax contributions. Hence, All immigrant households who purchased cars that cost more than ₪95,000 were attributed tax contribution as if they paid the full vehicle

[32] For example, browsing the two largest online listings of used cars in Israel (http://www.yad2.co.il and http://www.winwin.co.il Browsed on the week of January 19-25, 2014) yields that out of 500 listings, only 30 – 42 (6% - 8.4%) cost ₪95,000 or more. This probably held true in 2011 as well (Israel has a low inflation environment).

taxes, which might overestimate their tax contributions, although the number of immigrants who immigrated from the FSU after 2008 is dismal compared to those who immigrated before.

I apply the relative attribution method using the total vehicle tax revenues attributed to households (₪7,401 million). The resulting average annual vehicle tax contribution per household is ₪3,340.

Tobacco Taxes – The tax is levied on cigarettes and all other tobacco products[33]. In 2011, tax on cigarettes, which has 2 components, was ₪214.5 for every 1,000 cigarettes, as well as 260.6% on cigarettes' wholesale price. Revenues from tobacco taxes amounted to ₪4,960 million. Of the total amount, ₪792 million were tax revenues from local tobacco production (these tax revenues appear under the title "Tobacco Tax" in the Israeli Tax Authority reports, as in Table 4), while the rest – ₪4,168 million were tax revenues from imported tobacco products (Israel Government Revenues Administration 2013) (these tax revenues are part of the item entitled "Import Excise Tax" in Table 4). In order to assign tax revenues contribution to Israeli households, the contribution of tourists to revenues must be subtracted. Clune (1998) assumes throughout his study that 8.5% of tobacco tax revenues were attributed to tourists without explaining why. Dustmann et al. (2010, 2013) ignores the issue all together. I attempt to estimate this figure by gauging the share amount of time that tourists were in Israel compared to Israelis in the following manner - I estimate that in 2011 adult tourists (over the age of 20) stayed in Israel a total of 27.551 million days[34] (multiplying the number of adult tourists by their average duration of stay in Israel). The adult population of Israel in 2011 was 4.941 million. Multiplying by the 365 days in a year results in 1,803.465 million potential days. Subtracting from this amount the days in which I estimated Israelis to be abroad[34] (45.307 million) results in 1,758.158 million days in which the adult population of Israel was in the country. Of the total amount of days for tourists and Israelis, tourists were accountable for 1.54% of the days. Since smoking prevalence of Israeli adults is lower than smoking prevalence in the main countries from which tourists come to Israel[35], I will estimate that tourists bought 2% of the cigarettes sold in 2011. This means that tourists contributed approximately ₪99.2 million of tobacco tax revenues. The rest (₪4,860.8 million) will be assigned to Israeli households.

While Clune (1998) assigns revenues from tobacco taxes according to the number of adults in each household, I assign tobacco tax revenues based on survey detailed use of tobacco products by households. The Expenditure Survey contains the following items - "cigarettes", "tobacco for pipes and cigars" and "cigarettes

[33] Tax revenues (from both local production and imports) from tobacco products other than cigarettes were approximately ₪40 million – less than 1% of total revenues from tobacco products. Because their share out of the total tobacco tax revenues is very small, I will just assume that they are taxed to the same extent as cigarettes and combine the calculations of tobacco tax revenues from other tobacco products with cigarettes.

[34] Out of the 2.820 million tourists who visited Israel in 2011 (CBS 2014b), 92% stayed less than one month, while the rest (8%) stayed more than one month. Approximately 88% of tourists were adults (over the age of 20). The average duration of stay in Israel was 8.1 days for those who stayed in Israel less than a month (CBS, 2014c). I assume an average duration of 45 days for those who stayed for more than one month, as there is lack of data. This results in an overall 27.551 million days in which adult tourists stayed in Israel in 2011. As for Israelis, in 2011, 4.387 million departures of Israel were recorded (including those who have left the country several times during the year). Approximately 85% of them were adults (CBS 2013f). 86.6% of them stayed abroad less than a month with an average duration abroad of 8 days. The rest (13.4%) stayed more than a month (CBS 2013e). Similarly to the tourists, for these, I will assume an average duration of 45 days. This results in an overall 45.307 million days in which adult Israelis stayed abroad in 2011.

[35] The Ministry of Health (2013) estimates that in 2012, 20.6% of Israeli adults smoked. The estimations for countries from which most tourists come to Israel (United States, Germany, France, Russia, United Kingdom, France) range from 24.1% for the United Kingdom to 41.9% for Russia (Eriksen et al., 2012).

made in Israel". I combine these three items to yield each household's expenditure on cigarettes and other tobacco products[36]. To assign each household its contributed share of the tax revenues, I apply the relative attribution method, using the total tobacco tax revenues (₪4,860.8 million). The resulting average annual tobacco tax contribution per household is ₪2,194.

Other Excise Taxes – After subtracting excise tax revenues that stemmed from fuel, tobacco and vehicles from the total excise taxes revenues (₪31,298 million), ₪1,134 million excise taxes revenues remain to be attributed to households. The product categories responsible for these revenues are - alcohol, cellular phones, spare vehicle parts (such as tires) and certain electronics. These were responsible for ₪459 million, ₪335 million, ₪201 million and ₪139 million of revenues, respectively (Israeli Government Revenue Administration 2014)[37]. Excise taxes are also levied on uncommon niche products such as jacuzzis, furs and sailboats but there is no data on revenues stemming from these, so they were left out (Israel Tax Authority 2014b). In attributing excise tax revenues to households, I rely on expenditure of each household on the relevant taxed items, as detailed in the Expenditure Survey. With regard to the durable goods (cellular phones, spare vehicle parts and certain electronics), some of the purchases detailed in the Expenditure Survey might be of second-hand goods, on which no tax is paid to the government. I assume that the expenditures detailed in the Expenditure Survey are on new goods in their entirety; i.e. that second-hand purchases are negligible in respect to the total purchases of these goods. With regard to most of these products, I feel this is a judicious assumption. In any case, if lower income households purchase a higher share of second-hand goods, the assumption would overestimate the tax contributions of late immigrants from the FSU, as they are attributed tax contribution which they did not make due to the purchase of second-hand goods. In addition, I assume that the purchases of durable goods by tourists in Israel were negligible; prices of electronic appliances and other durable goods in Israel are considerably higher than prices in other OECD countries[38]. Thus, it is sensible to maintain that tourists, most of whom arrive from OECD countries, were not inclined to purchase these goods in Israel.

For each of these products, I estimate the share of items that were purchases by businesses, so to attribute to households only their purchases. Often businesses purchase higher grade goods (for example, better cellular phones), or less second-hand goods, which means that their share of the tax revenues should be inflated – that is to say, higher than their share of the purchases. This might be balanced by the fact that they pay lower prices than consumers would pay for the same goods because they purchase in bulk. Without additional information, I estimate that the share in purchases is equivalent to the share in revenues.

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[36] Expenditure on tobacco for pipes and cigars, as estimated by the Expenditure Survey, was a mere ₪32 million in 2011. Although the tax on this type of tobacco was lower than on cigarettes for the most part of 2011, due to the negligible usage, and the lack of data on specific revenues from these tobacco products, I just group this expenditure with the expenditure on cigarettes.

[37] The Israel Government Revenues Administration report (2014) contains data on the tax liability in each product category (tax liability in a certain year does not entail tax collection in the same year), as well as on the overall adjustments that are made to account for differences in the timing of the collection, which are not available for each product category. I scaled down the tax liability amounts in each product category accordingly, so that the overall revenues from all product categories match the actual tax collection (after adjustments). This entails a 33.6% scale down for each product category.

[38] In 2011, the price level of durable goods in Israel was 33% higher than the average price level in the OECD countries. The price level on all consumer goods in Israel was 18% higher than the OECD average (OECD 2014a).

Alcohol – Excise taxation on alcohol products is divided into two categories – beers, which are taxed ₪2.18 per liter and other alcoholic beverages, such vodka and whiskey, which are taxed ₪21.8 per liter, as well as a 75% tax on their wholesale price (Israeli Government Revenue Administration 2014). Excise taxes do not apply to wine. As with cigarette taxes revenues, accounting for "Israeli days" compared with "tourist days", I assume that tourists were responsible for 2% of alcohol revenues (₪9 million). I assume that businesses do not contribute to alcohol tax revenues. These leaves ₪450 million alcohol excise tax revenues to be attributed to households. While Clune (1998) allocated alcohol revenues to household according to the number of drinking-age adults in each household (which does not entail actual alcohol consumption), I attribute revenues to households based on survey detailed use. Of the total revenues attributed to households, ₪165 million stem from beers and the rest (₪285) from other alcoholic beverages (Israeli Government Revenue Administration 2014). The Expenditure Survey details the expenditure of each household on beer, as well as on other alcoholic beverages (other than wine). Applying the relative attribution method, yields an average annual alcohol tax contribution per household of ₪203.

Cellular Phones – The excise tax on cellular phones is 15% (Israeli Government Revenue Administration 2014). Relying on several reports (for example, Ness 2012 and Levy 2012) that estimate that 35% of cellular companies' consumer are businesses, I estimate that the same share of cellular phones are purchased by businesses (including the government). Hence, I attribute ₪218 of the excise tax revenues from cellular phones to households. The Expenditure Survey contains an item detailing the purchases of cellular phones by households ("cellular phones, purchase"). Applying the relative attribution method, I attribute tax revenues to households, resulting in an average annual cellular phones tax contribution of ₪98.

Spare Vehicle Parts – Excise taxes are levied on vehicle parts including engines, batteries, and other vehicles spare parts and accessories. The excise tax rate on most parts is 12% (Ministry of Justice 2012). Because I estimate that 77.5% of vehicles were owned by households, I deduce that the same proportion of revenues from spare vehicle parts came from households (implicitly assuming that all cars need the same extent of repairs); i.e. – I attribute to households ₪156 million of revenues. Additionally, spare vehicle parts were responsible for ₪63 million in customs duties revenues; as with the excise tax revenues, I estimate that 77.5% (₪49 million) stemmed from households. In total, the purchases of spare vehicle parts by households generated ₪205 million in revenues. The Expenditure Survey contains five relevant items – "spare parts", "full motor treatment, motor replacement", "clutch and gear repair", "tires and other vehicle repairs" and "car's radio, air conditioner, alarm (extra) repairs". I sum the expenditure of each household on these items and attribute revenues to households according to the relative attribution method, resulting in an average annual spare vehicle parts tax contribution per household of ₪92.

Certain Electronics – Excise taxes are levied on certain audio-visual electronic devices such as speakers, amplifiers, radio receivers and televisions. The tax rate is 15% on most goods (Ministry of Justice 2012). Businesses that would be purchasing significant quantities of these goods would be hotels. There are 2.2 million households in Israel and only about 61 thousand hotel rooms (CBS 2014d) which could be thought of as households, with respect to television purchases. Other businesses that might purchase the audio related devices are restaurants, night clubs, etc. There are even less of these. So, I prudently assume that 10% of the tax revenues from these electronics stemmed from businesses, while the rest – 90% (₪125 million) stemmed from households. The Expenditure Survey contains five relevant items – "radio (including tape recorder)", "stereophonic system", "television", "video" and "DVD system". I sum the expenditure of each household on these items and attribute revenues to households according to the relative attribution method, resulting in an average annual electronics tax contribution per household of ₪56.

Stamp Tax – The tax was levied on certain documents stipulated by the law, such as contracts and bonds (Israel Tax Authority 2014a). Documents signed after 2006 are no longer taxed. The insignificant amount that still appears under revenues stemming from the stamp tax – ₪7 million are probably residual revenues. I assume that businesses contributed half of the revenues and the rest was contributed by households. Tax revenues that were contributed by households were attributed equally to all households – ₪1.6 per household.

Customs Duties – In 2011, imports totaled ₪263,982 million (CBS 2013g); approximately 30% of the amount was liable for customs duties, generating ₪2,920 million in revenues[39]; this entails an average effective customs duty rate of 3.7% on taxable goods, and 1.1% on all imported goods. Customs duties rates on goods range between 0% and 12%, except agricultural goods, on which the custom duty rate could be higher (Israel Government Revenues Administration 2013). Table C in Appendix 1 details the customs duties revenues for each goods category; customs duties revenues are divided into two categories – "consumer goods" and "production inputs and investments goods". Customs duties revenues from the latter (₪1,391 million) are attributed to businesses. Customs duties revenues from vehicle purchases, as well as from spare vehicle parts were attributed to households separately in the respective section above, so after subtracting these from "consumer goods" revenues (₪1,529 million), ₪1,339 million customs duties revenues remain to be attributed to households. For each goods category, I sum up the expenditure of each household on the relevant taxed items, as appears in the Expenditure Survey, and using the relative attribution method, impute customs duties revenues to households.

The goods categories are general; nine categories encompass customs duties revenues on hundreds of goods. Because no data is available at lower levels of categorization, I attribute revenues to households

[39] The Central Bureau of Statistics (2013g) uses a categorization of imports that enables a better attribution of import revenues to households as opposed to businesses. The customs duties revenues amount detailed in their report is ₪2,888.1 million, which is approximately 1% lower than the amount stipulated in the Israel Government Revenues Administration report (2013) - ₪2,920 million. In keeping with the rest of the revenues data used in the study, I use the amount stipulated by the Israel Government Revenues report, with the Central Bureau of Statistics categorization, by inflating its amounts by the discrepancy amount (₪31.9).

depending on their expenditure on the general goods categories, which customs duties are categorized by. Each expenditure category includes the expenditure on hundreds of goods. This entails a few drawbacks; because customs duties are not levied on all goods, the expenditure detailed in the Expenditure Survey includes expenditures on goods that are not liable to custom duties; second, different customs are levied on different products. If for example, two households spend the same amount on the general category "food, beverage and tobacco", they will be attributed equal customs tax revenues, although they might purchase different goods within the category that are taxed differently, resulting in different customs duties contributions; in addition, the Expenditure Survey does not distinguish between the purchases of new goods and the purchases of second-hand goods, on which customs duties taxes might have been paid in previous years. Nonetheless, it is sensible to posit that if a group (one of the six groups, by which households are categorized) spent more on a certain taxed goods category than another group, it also contributed more customs duties revenues than the other group and this idea is exercised by the relative attribution method.

Tourists also share the burden of customs duties on purchases they make in Israel. The goods categories examined in this section are very broad; it is probably more reliable to attribute tourists tax contributions on these broad expenditure categories, where goods that are heavily consumed by tourists balance out groups that are not consumed by tourists, than on a specific expenditure category, unless specific data is available. As detailed in the "taxes paid by tourists" section, in 2011, tourists spent approximately ₪17,761 million on goods and services in Israel, ₪3,937 million of which were on goods and services that might be liable to customs duties (Freeman, 2013) (food services and retail shopping, including duty free shopping); part of the amount is exempt from customs. The rest of their purchases are of services that are not imported (mostly flights, accommodation and transportation). Their purchases constitute an approximate 1% of private consumption in Israel. Hence, I estimate that tourists contribute 1% of customs duties revenues in each goods category.

Table 6 details the customs duties revenues attributed to households in each goods category, which Expenditure Survey categories were used in calculating household expenditure on the category and what share of revenues were attributed to businesses. It must be noted that customs duties revenues under the category "consumer goods" include revenues from households as well as businesses who purchase consumer goods; so, the share that businesses contribute must be determined. Nonetheless, most of the purchases of businesses are included in the "production inputs and investments goods" category; only purchases of goods that are not used in the production process are considered. For example, if a dentist purchases a medical equipment, it will not be counted under "consumer goods", as it enables the dentist to conduct his work, thus is considered an investment good. If the dentist purchases a piece of furniture for his office, it will be counted under "consumer goods" as it does not assist in the production process. These guidelines were considered in determining the share of revenues in each category that should be attributed to businesses.

The first seven categories describe specific goods so it was possible to locate the relevant goods in the Expenditure Survey, sum up the expenditure of each household on these goods and apply the relative attribution method. In contrast, the "miscellaneous" category, that was responsible for ₪110 million in revenues, does not specify any goods. It could cover numerous goods that are not covered by the other categories and are liable for

customs duties. Because these revenues could not be attributed according to the expenditure on any defined goods, I attribute these revenues to households according to each household's total expenditure on consumption.

Table 6 –Customs Duties Revenues Attribution Details, by Goods Category, 2011

Customs Duties Revenues Category	Share of Revenues Attributed to Businesses (%)	Revenues Attributed to Households (million ₪)	Expenditure Survey Categories
Food, Beverage and Tobacco	25	140.6	"food (excluding fruit, vegetables)", "vegetables and fruit" and "tobacco for pipes and cigars"
Clothing and Footwear	0	575.2	"clothing and footwear" not including "cleaning and laundry outside home" and "shoe repair and polishing"
Furniture and Household Equipment	25	267.9	"power tools", "tools and materials", "miscellaneous household needs", "furniture and household equipment" not including service and repairs items and insurance items
Medicines	0	3.0	"other expenditures on health" not including "optical sunglasses", "contact lenses", "sunglasses (no optical"), "medical or rehabilitation equipment" and "repairs and products for eyeglasses"
Articles for Recreation and Hobbies	0	69.3	"computer games", "games", "toys", "TV games (including electronic games)", "beach and picnic equipment", "workout equipment" and "other sport equipment"
Medical Equipment	0	7.9	"medical or rehabilitation equipment"
Jewelry, Watches and Precious Stones	0	14.9	"jewelry and watches" not including "watch and "jewelry and watch repair" and "other personal items"
Miscellaneous	25	81.4	"consumption expenditure"

Source: own calculations – CBS 2011 Expenditure Survey (2013c) and Israel Government Revenues Administration 2011-2012 Annual Report (2013).

Fees – Most government ministries charge numerous fees from individuals, households or businesses for rendered services, licenses or fines. In 2011, government revenues from fees were ₪5,230 million. The Israeli Government Revenue Administration Website (2014) details the fees collected by each ministry. This enabled the categorization of fees as ones relevant for households and ones that aren't, or that are negligible. The ministries that collected fees that were relevant for households were the Ministry of Transportation, Ministry of Justice, Ministry of the Interior and the Ministry of Public Security; these generated fees revenues of ₪3,520 million, ₪452 million, ₪394 million, ₪383 million, respectively. The fees collected by all other

ministries (₪481 million) were collected from businesses, not households[40] (Israel Government Revenues Administration 2013).

Ministry of Transportation – 91% of revenues from this ministry's fees (₪3,203 million) stemmed from annual vehicle registration fees[41]. Vehicle registration fees range between ₪816 and ₪4,508 depending on the car's cost, age and weight (Israel Government Revenues Administration 2013). As detailed in the fuel taxes section, an estimated 77.5% of vehicles were owned by households. I estimate that households contributed the same proportion of revenues from annual vehicle registration fees - ₪2,481 million. The rest (₪764 million) were contributed by elements other than households. It must be noted that this can be assumed since the registration fees ordinances reveal that commercial vehicles such as buses and trucks do not necessarily pay higher registration fees and if they do, these aren't considerably higher. Since data on the share of commercial vehicles that pay each registration fees level is unavailable, my assumption is sensible. In attributing vehicle registration fees to households I apply the same method detailed in the "fuel taxes" section, using an item in the Expenditure Survey detailing each household's expenditure on car and motorcycle registration. The resulting average annual vehicle registration fee contribution per household is ₪1,119. The remaining Ministry of Transportation fees revenues - ₪317 million stemmed mainly from driving license renewal fees, but also from numerous fees that should be attributed to businesses (such as permits for car repair shops and car appraisers, port fees, etc.). The Expenditure Survey contains two items pertaining to these fees – "registration and ownership transfer fee" and "driving license renewal"; according to the survey, the annual household expenditure on these total ₪108 million. This amount falls in line with an attribution of 56.0% of the remaining fees to businesses (i.e. non vehicle company related fees), leaving ₪142 million of revenues from fees related to vehicles of both households and companies. Then, attributing 77.5% of this amount to private households, according to the above estimated share of vehicles owned by households, resulting in an expenditure of ₪108 million by households on car related fees other than vehicle registration. I attribute these fees to households according to the actual expenditure that each household has on "registration and ownership transfer fee" and "driving license renewal", resulting in an average annual fee contribution of ₪49 per households. The overall average vehicle related fees contribution per household were ₪1,168.

Ministry of Justice – Fees levied by the Ministry of Justice include among others various court fees (including the rabbinical court that deals with marriages and divorces), inheritance fees, real estate fees, various corporation fees and fines imposed by the courts. There is no data on the distribution of fees revenues between households and businesses. Moreover, although some fees could be directly linked distinctly to either households or businesses, many fees are applicable for both, so a distinction is impossible. Due to the lack of

[40] These fees were: Ministry of Public Infrastructure (₪205 million), Ministry of Communications (₪148 million), Ministry of Finance (₪77 million), Ministry of Environmental Protection(₪22 million), Ministry of Foreign Affairs (₪21 million), Ministry of Commerce and Industry (₪3 million), Ministry of Agriculture and Country Development (₪2 million), Ministry of Tourism (₪1 million) and the Ministry of Housing (₪0.5 million).

[41] Data is only available for 2012 (Israel Government Revenues Administration 2013), so for 2011, I assume that the same share of the Ministry of Transportation revenues from fees stemmed from vehicle registration fees, which is reasonable.

information, I assume that half of the revenues were attributed to households (₪226 million), while the other half were attributed to businesses. The Expenditure Survey contains two relevant items – "rabbinate services, marriage registration" and "legal service". The former is directly related to the rabbinical court fees that are a part of the Ministry of Justice fees, while the latter doesn't necessarily mean that households have paid any Ministry of Justice fees, but without knowing the actual expenditure on Ministry of Justice fees by households, I assume that households who have purchased a legal service are the ones that might have also paid some court fees. I feel that this will better distribute the revenues amongst households than attributing them according to other measures, such as equal attribution to all households. When comparing groups, as done here, what is important is the share out of total revenues that can be attributed to the group as a whole. So, if more households in a certain group spent money on "legal services" than in another group, it is appropriate to attribute to the group a higher share of Ministry of Justice fees contributions, as done with this method, even if a certain household that had "legal service" expenditure didn't actually pay any court fees. So, I tally the number of households that have spent money on either of these two items (counting a household that has spent money on both twice) – 106,651; then, I divide the revenues attributed to households by this number, resulting in an average annual revenues from Ministry of Justice fees per "paying" households of ₪2,119. Then, I attribute this fixed amount to each "paying" household (attributing twice the amount for households that had spent money on both items). It should be noted that the actual expenditure of each household on the "legal service" item is not taken into consideration, just the fact that it has used a legal service during the year. The average annual Ministry of Justice fees contribution per household were ₪102.

Ministry of the Interior – Fees levied by the Ministry of the Interior pertain to households and businesses. The former include fees related to identification cards, passports, citizenships, as well as certain construction permit fees (although most construction permit fees pertain to businesses, local authorities, etc.); the latter includes construction permit fees, business licenses and foreign workers permits. Because there is no data regarding the distribution of fees revenues between households and businesses and due to the fact that most fees are levied on households, as well as the fact that the services provided by the Ministry of the Interior are standardly used by most households in Israel at some point during their existence (unlike Ministry of Justice fees, for example), I will assume 75% of revenues were attributed to households (₪296 million), while the remaining 25% were attributed to businesses (₪98 million). It is reasonable to assume that revenues from the fees levied on services provided to households by the Ministry of the Interior are equally shared amongst all groups, regardless of place of birth; every household has to incur costs relating to identification cards (issuance, replacing a lost card, status modification, etc.) and most households have to incur passport related costs[42]. Beside the fact that no item in the Expenditure Survey pertains directly to any of these costs, which means that

[42] In general, households who earn less tend to travel abroad less frequently or not at all. Although certain immigrant groups earn less, immigrants also tend to travel in order to visit relatives in their home countries, which is less relevant for natives. Analyzing the share of households that had an expenditure on the "travel abroad" item in the Expenditure Survey (which means that they probably have travelled abroad in 2011) yields that for groups 1 through 6 the shares were 13.3%, 17.4%, 18.0%, 11.6%, 15.3% and 15.5% respectively. The national average was 14.7%. The differences between groups are not considerable, which means that passport related costs, which are applicable to tourists, can be equally attributed to households without a sizeable error.

the fees cannot be assigned on an actual use basis, there is no cardinal reason to assume that a certain group incurs these costs at a higher share than other groups. Therefore, I will attribute the revenues equally amongst households, while taking into account the different number of persons in each households, as larger households entail higher identification card, passport and other costs. I divided the costs attributed to households (₪296 million) by the total number of persons (7,409 million) to result in an average Ministry of Interior fees annual revenues per person of ₪40.0; the average annual Ministry of Justice fees contribution per household were ₪134.

Ministry of Public Security – The revenues from fees levied by the Ministry of Public Security include weapons licensing and criminal registration examination fees which are minuscule and traffic fines which constitute the overwhelming majority of revenues[43]. I assume that all revenues (₪383 million) stemmed from traffic fines. Because I estimate that 77.5% of vehicles were owned by households (see "fuel taxes" section), I assume that this proportion holds true with regard to the share of fines that were imposed on households; i.e. ₪297 millions of the revenues from fines are attributed to households. The Expenditure Survey does not contain an item detailing the expenditure of households on traffic fines[44]. So, I attribute these revenues according to the number of cars in each household, with an equal share per car. This of course assumes different groups behave identically on the road, but without any other information, this is the best attribution of revenues between households. I divided the costs attributed to households (₪297 million) by the total number of vehicles (1,859 million)[45] to result in an average Ministry of Public Security fees annual revenues per car of ₪159.8; the average annual Ministry of Public Security fees contribution per household were ₪134. This bring the overall average annual fees contribution per household to ₪1,538 .

Attributing Other Revenues (Including Loans) – Government revenues from items other than taxes and fees are detailed in Table 1A in Appendix 1. In 2011, these government revenues totaled ₪132,069 million; ₪105,985 million stemmed from domestic and foreign loans, ₪8,353 million from repayment of government investments and loans and from interest, ₪8,227 million from grants from foreign governments and the remaining ₪9,504 million were other revenues. All of these revenues cannot be attributed directly to households, as these do not stem from the direct payments of households. Concurrent with the borrowing of ₪105,985 million, the government repaid ₪124,487 million in past loans (see Table 7 in the "government

[43] Regarding weapons possession, in Israel possession of weapons by private individuals is uncommon. The data backs this claim, as the item entitled "weapons license purchasing" in the Expenditure Survey did not contain a single observation. Even if certain private individuals posses weapons, its negligible. Another backing of the claim that the overwhelming majority of fees revenues stem from traffic fines is the following - in 2004 traffic fines collection was passed on from the Ministry of Justice to the Ministry of Public Security. Before 2004, the Ministry of Public Security revenues from fees were negligible. After the fines collection was passed on to the Ministry, its revenues from fees jumped by about ₪300 million, and the revenues of the Ministry of Justice declined by approximately the same amount (₪280 million). No other major changes have been implemented to the Ministry of Public Security fees mechanism since this change in 2004.

[44] The Expenditure Survey does contain an item entitled "fines" but these are probably fines other than traffic fines (such as court imposed fines), as the minimum annual expenditure pertaining to this item is ₪2,592 and the average is ₪14,001, while most traffic fines range between ₪100 and ₪1,000.

[45] The number of cars in each household are categorized as 0,1 or 2 where 2 refers to 2 cars *or more*. I assume that households who are described as owing "2 cars" actually own exactly 2 cars.

revenues" section). Both items are two sides of the same coin; it can be thought of as if the government borrowed ₪105,985 and used it to repay for past loans, leaving ₪18,502 million in expenditures that were financed through taxes and fees. Accordingly, of the expenditures and revenues pertaining to domestic and foreign loans, only ₪18,502 million in expenditures will be dealt with in the expenditures section. This is no different than attributing the full amounts separately as an expenditure and as a revenue using the same method (such as attributing it to all households equally); in this case the ₪105,985 in revenues attributed to households will cancel out ₪105,985 of the expenditures attributed to households, leaving only ₪18,052 in net fiscal impact.

This leaves the attribution of the remaining ₪26,084 million. The amount includes grants from foreign governments, royalties, receipts from the sale of government owned companies, etc. Because no specific households are responsible for these revenues, they should be attributed equally to the population. Following the conclusions from the discussion that appears in the "public goods and services" section (under "government expenditures"), I attribute these revenues under two scenarios; one, in which the revenues are attributed equally to every household; alternatively, revenues are attributed equally to every person.

For the first scenario, I divide the total revenues by the number of households, yielding an average annual contribution per household of ₪11,773; I attribute this amount to every household. For the alternative scenario, I divide the total revenues by the number of persons, yielding an average annual contribution per person of ₪3,519. Then, I attribute this amount to each household according to the number of persons residing in the house, one per person. This method attributes each population group a share of the total revenues that equal its share in the population.

Unattributed Taxes and Fees– For each tax and fees category, households were attributed their estimated share in revenues; the share that was estimated to be paid by businesses, tourists and foreigners, and the government and local authorities, was excluded. With respect to businesses, the unattributed taxes and fees revenues are predominantly the taxes paid on intermediate goods (customs, excise taxes, etc.), taxes paid on properties, taxes paid on fuel and vehicles and government fees; with respect to tourists and foreigners, these are predominantly the taxes paid on properties, capital markets and dividends deductions, several taxes on their consumption (tobacco, alcohol, overall value added tax, etc.) and the corporate income revenues tax borne by foreign capital owners of Israeli companies; with respect to the government and local authorities, these are predominantly the non-profit value added tax paid by non-profit organization that are financed by governmental transfers.

Attributing these revenues to households, if a method can be rationalized, is desirable so that all government revenues be attributed to households, not only the taxes and fees paid directly by households; attributing all government revenues to households obviously helps present the broadest possible picture with regard to which households bear the burden of taxes and fees. If these taxes and fees were not attributed to households, only a partial picture would rise from the data; it could even be argued that the taxes and fees revenues that were left out, are cardinal, such that in their absence, the bottom line is questionable. Moreover, if

only part of the government revenues were attributed to households, concurrent with the attributing of *all* government expenditures to households, it would be difficult to estimate the *net* fiscal impact of immigrants, which is a principal goal of this study. Not only does attributing these revenues strengthen the results, but it is also logical to attribute them to households since the taxes and fees paid by businesses are ultimately borne by individuals, whether it be customers, workers or capital holders; the taxes and fees paid by government and local authorities are clearly financed by the public; and with respect to the taxes and fees paid by tourists and foreigners, these could be considered as a contribution to the Israeli government (thus, to Israeli households) for their of use of public goods and services.

As with other taxes that are not borne by households, the literature differs on how these should be attributed to households, if at all. Clune (1998) ignore the issue altogether by not attributing these revenues at all, instead subtracting the amount from the government benefits received by households, so to enable the estimation of the net fiscal impact. Dustmann and Frattini (2013) Dustmann et al. (201) attribute these revenues, but in a way that ignore the subtleties involved; for example, when attributing value added tax and excise tax revenues, a considerable share of which are not paid by households, the authors distortedly attribute all revenues to households without acknowledging that fact that a portion of revenues were not paid by households; this holds true for other of their attributed taxes. With the broad OECD study (2013), it seems that some of the revenues stemming from businesses and others, were not attributed at all, while others were attributed solely to households. Conversely, Tonkin (2014), the Congressional Budget Office (2013), Australian Bureau of Statistics (2012) and Chamberlain and Prante (2007) attribute these taxes more sensibly. Tonkin, the Congressional Budget Office and the Australian Bureau of Statistics assume that the taxes paid by businesses are ultimately borne by the consumer of the final product, thus, they should be attributed to households in proportion to each household's expenditure on consumption. When a business pays a tax on a good that is used in the production process, the tax will be reflected in the final price of the good. This is logical when considering the taxes on proper intermediate goods, but also when considering the taxes that are paid by businesses on their properties and on their vehicles; for businesses involved in the real estate sector, properties are an intermediate good; for the businesses not involved in the real estate sector, properties are still part of the capital required to produce the final good. The same holds true for the vehicles. Nonetheless, the two studies ignore the unattributed taxes paid by tourists, foreigners, local authorities and the government. Chamberlain and Prante (2007) take a different approach; without explicating why, the authors attribute the taxes that are paid by businesses according to the attribution of the corporate income tax; i.e. it is assumed to be borne by households in proportion to their labor income (70%) and by households in proportion to their capital income (30%).

The total unattributed taxes and fees revenues amount to ₪45,706 million under the first scenario of the corporate income tax attribution, and ₪45,032 million under the second scenario[46]. Under the first scenario, businesses were responsible for ₪20,539 million of these revenues, governments and local authorities for

[46] The two scenarios assume that a different share of capital income tax revenues are borne on the owners of capital. Because it is assumed that a share of capital is owned by foreigners, the two scenarios produce different amount of unattributed tax revenues from tourists and foreigners.

₪20,028 million and tourists and foreigners for ₪5,139 million. Under the alternative scenario, the amount attributable to tourists and foreigners is ₪4,465 million. The estimates of taxes attributed to businesses, the government and local authorities, and tourists and foreigners are explained in each respective section (except for the estimation of the value added tax paid by tourists, delineated in Appendix 5).

In attributing the taxes and fees paid by businesses, Similarly to Tonkin (2014) and the Congressional Budget Office (2013), I assume that the taxes and fees paid by businesses as part of their production process, as explained above, are borne by the consumers. This means that households who consume more, should be attributed a larger share of these revenues. Therefore, I attribute the revenues to households in proportion to their expenditure on consumption. I sum up the expenditure of each household on consumption, as detailed in the Expenditure Survey and apply the relative attribution method such that the contribution of each household is estimated to be its share of the total expenditure on consumption. The average annual contribution per household is ₪9,270 .

As for the tax revenues contributed by the local authorities and the government, they are obviously finances by households. Thus, I attribute these revenues to households in proportion to their taxes and fees contributions. I sum up the taxes and fees contribution of each household and apply the relative attribution method such that the contribution of each household is estimated to be its share of the total contributions of all households. There are four scenarios with respect to the taxes and fees contribution of each household – two scenarios were used for the attribution of corporate income tax revenues, and two scenarios were used for the attribution of the "other" revenues. So, overall, four scenarios had to be used in the attribution of these revenues as well, because under each scenario, the taxes and fees contribution of each household is different. Under the baseline scenarios for both, the average annual contribution per household is ₪9,039.

As for the tax revenues contributed by tourists and foreigners, these can be viewed as the payment for their use of public goods and services (roads, tourist attractions, etc.). If their contributions exceed the value of their use of public goods and services, which is the likely case, then the difference can be considered a "free gift" from foreign households to be distributed amongst Israeli households. It would be ideal if the contributions of tourists and foreigners could be offset by the value of their use of public goods and services, but this could not be done due to the lack of data. This means that the tourist's and foreigner's share in the consumption of public goods and services was attributed to Israeli households (i.e., tourists were not distinguished when attributing any government expenditure). Those households who were attributed a benefit that was actually used by tourists and foreigners should also be attributed the appropriate tax contribution of tourists and foreigners so to offset the attributed benefit, but this is impossible to do. Moreover, it is unclear how much additional expenses were made by the government to supply the goods and services used by tourists and foreigners; for example, tourists and foreigners make a heavy use of roads; it is unclear what proportion, of the expenditure on roads construction and maintenance should be attributed to tourists and foreigners. Because of this, and due to the lack of data, I assume that the majority of the revenues contributed by tourists and foreigners can be considered a "free gift" to Israeli households. It is reasonable to attribute the tax revenues of tourists and foreigners to every households, since tourists and foreigners don't come because of a specific households, but

because of the country as a whole. Accordingly, I attribute these revenues to households under the two scenarios used to attribute benefits or contributions that are borne equally by households; one, in which the revenues are attributed equally to every household; alternatively, revenues are attributed equally to every person.

For the baseline scenario, I divide the total revenues from tourists and foreigners by the number of households, yielding an average annual contribution per household of ₪2,319, under the first scenario of the of the corporate income tax attribution, and ₪2,015 under the second; I attribute this amount to every household. For the alternative scenario, I divide the total revenues by the number of persons, yielding an average annual contribution per person of ₪694, under the first scenario of the corporate income tax attribution, and ₪603 under the second. Then, I attribute this amount to each household according to the number of persons residing in the house, one per person. This method attributes each population group a share of the total revenues that equal its share in the population. Overall, four scenarios were examined - two corporate income tax attribution scenarios, and within each of these, the revenues were attributed either equally to households or equally to persons.

Overall, for all unattributed taxes and fees, and for the baseline scenario, the average annual contribution of each household ₪20,629.

Adjustments – The overall attribution of government revenues should be lower by a ₪1,233 million, because of various adjustments. I attribute the adjustments to each household in proportion to the overall taxes and fees contributions that it made (without its NII contributions, as the adjustments pertain solely to government revenues). Households that made higher taxes and fees contributions are attributed a higher adjustment (meaning, a more negative adjustment). The average annual contribution under the baseline scenario per household is -₪10.

Government Expenditures

The flip side of the study requires the attribution government expenditures to households. This task is harder than revenues attribution; first, government revenues stem from a few defined taxes and fees, while government expenditures encompass thousands of regulations and ordinances. Not only is the information on these scarce, but even if were available, it would have been impossible to attribute each of these to households. Second, data on the consumption of public services by households is limited; the surveys I use contain detailed information on the household contribution of three of the main government revenues sources (social security, health insurance payments and income tax). With regard to other revenues, they could have been estimated according to the actual use of taxed goods and services, as appears in the survey. With government expenditures, the surveys do not directly detail the consumption of any government services; it has to be inferred using related data, which often requires strong assumptions that leave room for significant error in estimation. Thus, government expenditure attribution is likely less accurate. Nonetheless, even if the specific figures reported should not be taken per se, they do provide a clear direction as to the use of public services by each studies group – which group uses more public services, and which uses less public services.

The Accountant General *Budget Implementation by Ordinances* file (2011) detail government outlays by ordinances. Each ordinance describes a specific government expenditure. Ordinances provide the highest level of detail on the expenditure, as it is the lowest level for which expenditure data is broken down. Ordinances are then grouped into higher levels of classification, with the highest level being the grouping of ordinances under a Ministry. In some instances, where specific expenditure data was not required, such as data on the total expenditure of the Ministry of Defense, looking at the amount at the ministry level was sufficient, while in other instances, when specific expenditure data was required, examining outlays at the ordinance level enabled a more precise classification of expenditures.

For each ordinance, the file details the budgetary amount (i.e. the amount that was allocated for the ordinance in the original budget proposal) and the implemented amount (i.e. the year-end amount that was actually spent for the ordinance, as changes are frequently carried out during the year). Clearly, the implemented amount was used throughout the study. Also, I did not distinguish between current spending and capital spending (such as constructing roads), which are categorized separately in the file.

Table 7 details the government and NII expenditures. Expenditures were categorized in a way that first, provides an insight into government expenditures in Israel (i.e. I refrained from classifying expenditures under categories that were too general in scope, thus concealing the meaning of the expenditure), and second, breaks expenditures into categories according to each expenditure's attribution; for example, the expenditures on holocaust survivors were isolated so they could be attributed to the specific beneficiary population.

Following the table, are the descriptions of the attribution of each of the government expenditure items.

Table 7 –Government and National Insurance Institute Expenditures (million ₪), 2011

	Expenditures	Share of Expenditures
*Expenditures Allocated **Differently** to Households*		
National Insurance Institute Allowances[1]	61,598.0	15.4
Healthcare[2]	36,934.1	9.3
Primary Education	12,926.6	3.2
Government Employees Pensions	11,596.0	2.9
Secondary Education[3]	11,077.9	2.8
Education n.e.c.[4]	8,493.7	2.1
Academic Education	7,557.9	1.9
Police	6,113.5	1.5
Pre-Primary Education	2,893.7	0.7
Disabled Holocaust Survivors	2,764.8	0.7
Law Courts and Legal Affairs[5]	2,623.6	0.7
Social Welfare Services - Other	2,618.4	0.7
Incarceration	2,141.9	0.5
Public Housing and Rent Assistance	2,012.0	0.5
Social Welfare Services - Care for the Disabled[6]	1,833.0	0.5
Labor Market Affairs[7]	1,738.2	0.4
FSU Immigrants Specific Expenditures[8]	1,590.4	0.4
Transfers to Religious Educational Institutions	1,163.9	0.3
Senior Citizens[9]	296.7	0.1
Public Transportation Subsidies for Youth	200.2	0.0
Adjustments	-23.0	-0.0
*Expenditures Allocated **Equally** Amongst Households*		
National Defense[10]	60,145.8	15.1
Transportation[11]	10,355.3	2.6
Transfers to Local Authorities	4,034.5	1.0
Market Subsidies[12]	3,493.7	0.9
Industry R&D, Infrastructure and Subsidies	2,613.1	0.7
Public Security n.e.c.[13]	2,370.2	0.6
Government, Parliament, President's Office and Prime Minister's Office	2,188.7	0.5
Financial and Fiscal Affairs[14]	2,126.1	0.5
Foreign Affairs	1,586.2	0.4

National Infrastructure (Gas, Oil, Water, Electricity)	1,194.3	0.3
Culture and Sports[15]	1,079.8	0.3
Agriculture	836.5	0.2
Interior Affairs[16]	818.4	0.2
Expenditures n.e.c[17]	757.1	0.2
Development Costs n.e.c.[18]	740.7	0.2
Tourism	571.9	0.1
Housing Infrastructure	409.8	0.1
Religious Services	404.8	0.1
Fire Protection[19]	377.1	0.1
Science Infrastructure	167.2	0.0
Environmental Affairs	142.4	0.0
Communications Affairs	36.3	0.0
Other Expenditures		
Domestic and Foreign Loans	124,486.7	31.2
Total	399,087.1	100.0

Source: own calculations – Accountant General Budget Implementation by Ordinances Report (2011).

[1] In 2011, the government transferred ₪28,727 million to the NII to pay for the allowances. The remaining amount needed to pay for the allowances were the social security revenues. Transfer amount is not included in the table since the it is already manifested in the total NII allowances amount. Reserve duty allowances are excluded (these are attributed under the national defense budget).
[2] Including the expenditure of the health maintenance organizations.
[3] Including the Division for Settlement Education, most of which deals with secondary education.
[4] General administrative costs and other expenditures that could not be imputed to a single education level; these include the Pedagogical Administration, the Teachers Administration, student transportation, equipment and development, sports in schools, independent and recognized education, schools development and the expenditure of running the Ministry of Education.
[5] Including the Equal Rights Commission.
[6] The rehabilitation and mental handicap care department under the Ministry of Social Affairs and Social Services.
[7] Labor market supervision and enforcement, employment encouragement programs, employment service and the professional training department.
[8] The expenditure items are detailed in Table 1D in the Appendix 1.
[9] The budget of the Ministry of Senior Citizens Affairs and public transportation subsidies for senior citizens.
[10] Including the Atomic Energy Committee, emergency planning, coordination of government activities in the territories, the National Security Counsel, grants to demobilized soldiers and reserve duty allowance paid by the NII.
[11] Including Israel Railways development that appears under "other development costs".
[12] Emergency fuel reserves, emergency food reserves, public transportation prices subsidies (excluding subsidies for senior citizens and youth which will be attributed separately), water supplier subsidies, agriculture supply subsidies and other insignificant subsidies.
[13] Including pensions, witness protection program, general development and the expenditure of running the Ministry of Public Security.
[14] Including regulatory bodies (Antitrust Authority, Natural Gas Authority, Fair Trade Authority, etc.).
[15] Including culture expenditure that appears under the Ministry of Education – Jewish culture and the Israeli Educational Television and culture expenditure that appears under "other expenditures" – transfers to the Israeli Broadcasting Authority.
[16] Including the Population and Immigration Authority.
[17] Israel Mapping Center, the Israeli Ombudsman, Antiquities Authority and other expenditures.
[18] Such as the government computerization project, assistance to defense companies in need, government building construction etc.
[19] Including fire protection that appears under the Ministry of Interior Affairs.

National Insurance Institute Allowances **–** The NII is responsible with allocating most government allowances to households. In 2011, allowances allocated by the NII to the public amounted to ₪62,666 million. The NII allocates two types of allowances – allowances paid directly to households and allowances allocated to households indirectly, through rendered services. The former type was attributed to households according to survey detailed receipts, as the Income Survey details the NII allowances each households receives; the latter had to be estimated based on certain assumptions detailed below.

Allowances Paid Directly to Households - The Income Survey details the allowances each household receives. The following allowances are separately detailed – child, old-age and survivor's, work injury, disabled, unemployment and income support. The remaining allowances are grouped under the category "other allowances".

The allowance detailed in the Income Survey for each household refers only to the direct payment received by the household. Beside the direct payment to households, the expenditure of the NII on each allowance involves additional costs; first, the NII incurs administrative costs associated with each allowance; second, the expenditure incurred by the NII for several allowances includes costs other than the direct payments to households. For example, households who are eligible to receive the work injury allowance, do not only receive a direct payment, but also receive medical care that is covered by the NII and paid directly to the healthcare provider. Thus, the total expenditure on work injury allowances, as well as on other allowances, are higher than the household payments component. The additional costs associated with each allowance, beside the direct payments, should be attributed to beneficiary households. Therefore, for each allowance, I calculate the total payments to households, as estimated by the Income Survey, and multiply the amount by an inflating factor so it would match the actual total expenditure of the NII on all components of the allowance (direct payments, administrative costs, additional costs, etc.). Then, I inflate the allowance of each household proportionally, by applying the aforementioned inflating factor.

The attribution to each household depends on whether it received the allowance (according to the survey) and the received allowance amount, that differs between households. Clune (1998) on the other hand, attributes allowances only to receiving households (according to the survey he used), but in most cases, the amount allocated is the average allowance (the total expenditure on the allowance divided by the number of receiving households). This assumes that different population groups are eligible for the same allowance level, a feeble assumption, given the different household size, income, age composition, etc. Dustmann et al. (2010) and Dustman and Frattini (2013) apply the same method as Clune (1998).

Following are the descriptions of the allowances.

Child – The allowance is universally paid to families for each child under the age of 18, regardless of their income. The monthly allowance ranges between ₪169 and ₪252 per child, depending on the number of children[47] (NII 2014c).

In 2011, the NII expended ₪6,974 million on payments and administrative costs related to the allowance (NII 2012). The total payments to households, as estimated from the Income Survey, totaled ₪6,095 million. Accordingly, the allowance paid to each household was inflated by 14.4%.

Old-Age and Survivors – The old-age allowance is universally paid to men over the age of 70 and women over the age of 67, regardless of their income. Men and women who retire earlier, but not earlier than 67 and 62, respectively, whose income is lower than a certain threshold are also eligible to receive the allowance. The survivors allowance is paid to individuals (either spouses or children) who were reliant upon an insured individual that has passed way. The allowance is paid to a household unit depending on its composition. An eligible sole individual receives a monthly allowance of ₪1,444; an eligible couple receives a monthly allowance of ₪2,170; dependent children, low income and being over the age of 80 entitles recipients to additional payments (NII 2012).

In 2011, the NII expended ₪23,531 million on payments and administrative costs related to the allowance. The amount includes several costs not included in the Income Survey, which includes only direct payments to households (e.g. funeral costs, elderly consultation service, etc.) (NII 2012). The total payments to households, as estimated from the Income Survey, totaled ₪18,834 million. Accordingly, the allowance paid to each household was inflated by 24.9%.

Work Injury – The allowance is paid to individuals who were injured during work. The allowance has several components, the two main ones being a payment for missing work days (₪178.5 a day, on average) and a disability allowance when relevant (₪3,240 for salaried employees, on average) (NII 2012).

In 2011, the NII expended ₪3,450 million on payments and administrative costs related to the allowance. The amount includes several costs not included in the Income Survey, which includes only direct payments to households (e.g. medical costs, rehabilitation costs, etc.) (NII 2012). The total payments to households, as estimated from the Income Survey, totaled ₪591 million. Accordingly, the allowance paid to each household was inflated by 483.9%.

Disabled – The allowance is paid to individuals who have a disability that prevents them from earning a respected income. The allowance depends on numerous factors including the severity of the disability, the specific needs of the disabled individual and the number individuals who rely on him. In 2011, the average basic monthly allowance was ₪2,710; special needs entitles the recipients to an additional payments (NII 2012).

[47] Children born before 2003 receive higher allowances that can reach ₪446.

In 2011, the NII expended ₪11,664 million on payments and administrative costs related to the allowance. The amount includes several costs not included in the Income Survey, which includes only direct payments to households (e.g. rehabilitation, disabled car reimbursement) (NII 2012). The total payments to households, as estimated from the Income Survey, totaled ₪7,438 million. Accordingly, the allowance paid to each household was inflated by 56.8%.

Unemployment – The allowance is paid to individuals who have worked a certain period prior to losing their jobs. It is paid for a period that ranges between 50 and 170 days, depending on the age and the family status of the individual. The amount paid depends on the individual's wage prior to his unemployment; the higher his previous wage, the higher the allowance, up to the maximum allowance set at the mean wage (approximately ₪8,000).

In 2011, the NII expended ₪2,582 million on payments and administrative costs related to the allowance (NII 2012). The total payments to households, as estimated from the Income Survey, totaled ₪1,847 million. Accordingly, the allowance paid to each household was inflated by 39.8%.

Income Support – The allowance is paid to individuals without an income source, or whose income is lower than a certain threshold. The allowance is paid to a household unit depending on its composition and age of its members. For example, an eligible sole individual receives a monthly allowance of ₪1,593 and an eligible couple, without children, receive a monthly allowance of ₪2,482; (NII 2014d).

In 2011, the NII expended ₪2,617 million on payments and administrative costs related to the allowance (NII 2012). The total payments to households, as estimated from the Income Survey, totaled ₪2,137 million. Accordingly, the allowance paid to each household was inflated by 22.5%.

Other Allowances – These include the following allowances[48]; employees of companies that went bankrupt – ₪258 million; victims of hostilities – ₪831 million (NII 2012), and part of the maternity allowances; these allowances include a one-time birth grant, a childbirth allowance administered for a limited period before the mother returns to work, and a risk pregnancy benefit (NII 2014e); these allowances total ₪3,171 million. The category also includes reserve duty allowances that totaled ₪1,068 million; the allowance is paid to individuals who are drafted for reserve duty. In contrast with the other allowances, the reserve duty allowance is paid to individuals who provide a service to the government – reserve duty; it reimburses them for the period they had to miss work and equals their respective wages. Therefore, it does not increase the income of the beneficiaries as other allowances do; the allowance supersede the income that the reservists earned, it doesn't add to it[49]. Therefore, these allowances should not be attributed to households. I attribute these allowances as

[48] There are a few additional allowances that amount to negligible sums (Zion prisoners, righteous amongst nations, etc.).

[49] Non-employed reservists receive a minimal allowance directly; these allowance might be considered proper allowance, as they add to the income of the beneficiary. There is no data on the share on non-employed reservists; the share of employed Jewish men under the age of 40 (the population that is drafted for reserve duty) is over 80%. Moreover, these reservists receive lower allowances than the

part of the national defense budget (see the "public goods and services" section). Unfortunately, they cannot be distinguished under the "other allowances" category. Nonetheless, employed reservists' allowance does not appear in the survey under "other allowances", because they receive their allowance from their employer as part of their regular pay slip; only the allowances paid to self-employed and non-employed reservists, who are the overwhelming minority, appears under this category. So, only a small share of the total reserve duty allowances will be unwillingly attributed to households.

Overall, the NII expended ₪4,260 on payments and administrative costs related to "other allowances" (excluding the reserve duty allowances). The total payments to households, as estimated from the Income Survey, totaled ₪1,900 million. Accordingly, the allowance paid to each household was inflated by 130.5%.

Allowances Paid Indirectly to Households Through Rendered Services – These allowances are paid to those who provide certain services that households consumes. Because the payment to households is not direct, but through their consumption of services, the allowances could not be identified in the surveys. Therefore, the allowance to each household had to be estimated according to its characteristics. Following are the descriptions of these allowances

Maternity – Apart from the maternity allowances that are paid directly to households, as detailed above, there are additional allowances that cover the healthcare costs associated with childbirth, the principal cost being the hospitalization fees. The hospitalization fee is fixed per childbirth, regardless of the number of children born (₪10,485); the allowances are paid to the hospitals and others who provide the service (NII 2014f).

In 2011, the NII expended ₪2,307 on payments and administrative costs related to the these maternity allowances, ₪2,287 million of which were on hospitalization fees (NII 2014e). In order to attribute these allowances to households, I calculate the average allowance per household, by dividing the total expenditure on the allowance by the number of households containing children under the age of one (i.e. households with one child under the age of one or more than one child under the age of one carry the same weight, because the hospitalization fee is fixed per childbirth, regardless of the number of children); this yields an average allowance of ₪8,495 per childbirth. The average is lower than the fixed hospitalization fee mentioned above because some of the children under the age of one that appear in the survey were not born in the survey year, but in the previous year, thus, are counted as if they received the allowance, although they didn't. I then attribute the estimated average annual allowance to every household with children under the age of one, a single attribution per household. Attributing the average, which assumes an equal allowance per beneficiary household, is accurate, since the allowance is fixed.

Nursing – The allowance is allocated to retired individuals who are in need of assistance. The allocated amount depends on the functional status of the individual. The allowance is not passed directly to the individual,

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allowances of employed reservists, most of which receive a full income. Therefore, their share of the total reserve duty allowance is small.

but to the service providers who care for the individuals – caregivers, elderly assistance centers, etc. (NII 2012). In 2011, the average monthly allowance to recipients was ₪2,559 (NII 2014g).

In 2011, the NII expended ₪4,213 on payments and administrative costs related to the allowance. (NII 2012). None of the surveys detail the use of nursing services by household. Therefore, I attribute the allowances to household according to number of persons over the age of 65 in the household. First, I calculate the average allowance per person over the age of 65; this yields an average monthly allowance of ₪487. This figure is reasonable since the NII (2012) reports that 17.4% of the eligible population receives the allowance (17.4% of the average monthly allowance is ₪445). Then, I allocate an equal allowance to each person over the age of 65. This method is the same as attributing the allowances to each population group according to its share of the total number of persons over the age of 65 (for example, the number of persons over the age of 65 in the late FSU immigrants group is 20.7% of the total number of persons over the age of 65; thus, they are attributed 20.7% of the expenditure on the allowance). This assumes that the share of persons over the age of 65 who require assistance is equal for all population groups. This is not an unreasonable assumption; the likelihood that a person will require assistance does not depend, in most cases, on his socio-economic characteristics, but rather on other factors such as genetics, distributed more equally amongst the population. An allowance with the same feature is the disabled allowance; as detailed in Table 10, the allowance is distributed quite equally amongst all population groups, each receiving an amount similar to its share of the population; i.e. disability is distributed rather equally amongst all population groups (with the disabled allowance, the reference group is the whole population, while with the nursing allowance, the reference group is only persons over the age of 65).

Healthcare – The healthcare expenditure consists of the budget of the health maintenance organizations ("Kupot Holim") - ₪30,848 million, and additional costs of services provided by the Ministry of Health, rather than the health maintenance organizations - ₪6,086 million; these include the administrative costs of running the ministry, transfers to government hospitals, public health (vaccinations, preventative medicine, etc.), geriatric hospitals, etc. The NII (2012) estimates the cost per person, by age group, of the healthcare services provided by the health maintenance organizations; these are detailed in Table 1E in Appendix 1. As expected, the higher the age, the higher the costs per person, with the exception of higher costs associated with children under the age of 4. Because the cost per person pertains only to the health maintenance organizations expenditure, I inflated the cost per person proportionally by 36% so it would pertain to the overall healthcare costs (₪36,934 million), because the additional costs are likely to be associated with age as well (certainly with the general administrative costs, they should be attributed in greater share to the old (and very young) population who use the system the most, but also with most other costs mentioned above). I inflated the costs per person as follows; first, I calculated the numbers of persons in each age group; I used the Labor Force Survey since amongst surveys, it has the highest detail with regard to the age of adults. Multiplying the number of persons in each age group by the respective original cost per person yielded a total cost of ₪27,154 million. Dividing the overall healthcare costs by this amount results in an inflating factor of 1.36. This means that the

costs should be inflated by 36%. Accordingly, the costs per person for each age group were inflated by the same inflating factor; the inflated costs are detailed in Table 1E in Appendix 1.

The age groups detailed in the NII report were almost congruent with the age groups detailed in the Labor Force Survey, except for 2 age groups; the cost per person in the 1-4 age group was used for the 2-4 age group; also, the NII reports the cost per person for the 75-84 age group and the 85+ age group, but the Labor Force Survey only has a category for persons aged 75 and above. So, I calculated an average cost per person for the two groups – 75-84 and 85+, weighted by the population of each age group and applied the weighted average as the cost per person for the 75+ group.

The inflated healthcare costs per person were then applied to each household by multiplying the number of household members in each age group by the respective inflated cost per person. the overall healthcare benefit that each household receives is the accumulated cost for all household members. I then calculate group averages. The overall average annual benefit per household form healthcare is ₪16,636.

Pre-Primary Education – Children aged 3-6 attend pre-primary education. All children above the age of 5 are required to attend pre-primary education and are eligible for free studies. Children aged 3-4 are not required to attend pre-primary education, but most do; if they do attend pre-primary education, they can either study in a public subsidized kindergarten or a private kindergarten. In 2010, 73.3% attended the public kindergartens; The rest either did not attend kindergarten, or attended a private kindergarten (only 5.7% of all children aged 3-4 attended a private kindergarten) (Balas 2012). Those who attend public kindergarten are subject to a monthly payment; most pay approximately ₪800, while about a third, who live in designated neighborhoods (mainly of low socio-economic status, but also national priority settlements and front-line settlements) pay only a small fee. Those who pay the full amount are also eligible for discounts depending on their income; households with an income per person of under ₪1,299 are eligible for a 90% discount (i.e., they pay approximately ₪80), while households with an income per person between ₪1,300 and ₪2,217 are eligible for a discount that ranges between 10% and 90%; the average discount is 32% (i.e., they pay approximately ₪544), (Trajtenberg 2011).

The surveys used only detail the number of children aged 2-4 in each household, so this figure will be used for the calculations. This is not a major issue, since it is used across the board for all households, it provides a good indication for the share of pre-primary children in each population group relative to the other. In 2011, government expended ₪2,894 million on pre-primary education. The average monthly cost per child was ₪542.7 (the total expenditure on pre-primary education divided by the number of children aged 2-4 in the Income Survey). Although it is impossible to identify households who live in the designated neighborhoods that entitle them to an almost full discount (thus, should be attributed a larger government benefit), it is feasible to identify households who are eligible for the discount; these are poor households, so identifying them will also include many of the households who live in the designated neighborhoods (because as mentioned, these live in neighborhoods of a low socio-economic status). This will not identify households who live in designated neighborhoods (thus, pay only a small fee), but do not earn a low-income. Moreover, there is no way to identify

households with children aged 2-4 who do not attend pre-primary education, or those who attend private kindergartens.

In order to account for the fact that low income households receive a larger benefit, since they pay less for their children's pre-primary education, I calculate a weighted average cost per child; children in households with an income per person of less than ₪1,299 are given a weight of 2; children in households with an income per person of between ₪1,300 and ₪2,217 are given a weight of 1.5 and children with an income per person of ₪2,218 and over are given a weight 1. The resulting average monthly cost per child (total expenditure on pre-primary education divided by the weight total) is ₪790, ₪593 and ₪395 for the lowest income households, the second lowest income households and for households who do not receive a discount, respectively. I then calculate group averages. The average annual benefit per household is ₪1,303.

The attribution applied here for all education expenditures is similar to the attribution applied by Clune(1998), Dustmann et al. (2010) and Dustman and Frattini (2013), although they did not apply differential attribution due to discounts, which might be irrelevant in the United States or the United Kingdom.

Primary and Secondary Education – Children aged 6-12 attend primary education and children aged 12-18 attend secondary education; attendance is mandatory and free, except for small fees collected directly by the school for certain activities and insurances. A certain share study in "recognized but unofficial" school" (i.e., private schools, yeshivas, etc.), while the majority studies in the official public school system. The former receives government financing that is 75% - 100% of financing received by the official public school system (Arlozorov 2012); many of these schools charge a tuition to make up for the difference. Although children studying outside the official public system should be attributed a lower benefit, unfortunately, they cannot be identified in the surveys, so I attribute the same benefit for all children – the average cost per child in primary and secondary school.

In 2011, the government expended ₪12,927 and ₪11,078 on primary and secondary education, respectively. The Income Survey details the number of children aged 5-9, 10-14 and 15-17 in each household; this categorization does not fit the age groups who attend primary and secondary education separately. Therefore, I sum up the total expenditure on both primary and secondary education (₪24,005 million) and attribute it to the group of children aged 5-17. Dividing the total expenditure by the number of children yields an average annual benefit per child of ₪14,234; I attribute this average to each household – one for each child aged 5-17. I then calculate group averages. The average annual benefit per household is ₪10,813.

Education n.e.c. – The expenditure includes the administrative costs of managing the Ministry of Education, school security costs, the Teachers Administration (in charge of teacher training at all education levels), the Pedagogical Administration (in charge of special school programs at all education levels), school children transportation and "recognized and official education" which refers to schools who are financed through a different budgetary item than other schools. All of these expenditures pertain to all levels of education. Therefore, I attribute this expenditure (₪8,494 million in 2011) equally to all school children aged 5-

17. Dividing the total expenditure by the number of children yield an average annual benefit per child of ₪5,037; I attribute this average to each household – one for each child aged 5-17. I then calculate group averages. The average annual benefit per household is ₪3,826.

Academic Education –According to the CBS (2013i), in 2011, 251,795 students attended academic colleges. The same year, the government expended ₪7,558 million on academic education. In order to attribute the expenditure to households, the number of academic students in each household must be identified. Neither survey detail the number of students. So, I identified students by examining each household's expenditure on two items: "academic institutions" and "Open University" which is considered an academic institution as well. In 2011, a Bachelor's degree cost ₪9,521 and a Master's degree cost ₪12,866 (Vigdor et al. 2011); therefore, students have to pay this amount each year while attending their academic institution, so students can be identified in these manner. Of course there are a few difficulties; students who receive full scholarships that entail tuition exemption will not be identified as students. Nonetheless, full exemptions scholarships are more commonly granted for Master's and Doctorate students, who are less than 25% of students. Also, full exemptions are not common, so if the student receives a partial tuition exemption, he will still be identified as a student. Moreover, many students receive their scholarships from institutions of funds outside the university; these will most likely be identified as students, because they receive the money from the institution and then have to pay it to the university, so an expenditure should appear for them. Secondly, a portion of students attend private colleges that are not financed by the government, thus, these students should not be attributed any benefits. In 2011, 19.3% of Bachelor's students attended private colleges and 13.3% of Master's students attended private colleges; private colleges do not grant doctorate degrees (Council for Higher Education 2012). I attempt to account for these students by ignoring those whose expenditure on academic institutions is high (private colleges can cost significantly more than publically budgeted institutions, upward of ₪40,000 – four times more than public academic institutions).

Despite these difficulties, the estimated number of students from the Expenditure Survey is 240,315 – a mere 5% less than the actual number. As mentioned, first, I eliminate students who are assumed to be attending private colleges, thus, do not enjoy governmental benefits. I eliminate all students whose annual expenditure on academic education was more than ₪19,299 (2 times the cost of publically budgeted Master's degree), taking into consideration that some public students take more courses than required, or have to pay for delays in their studies, thus spend more than the statutory tuition. In addition, I assume that each household with an expenditure on academic studies, has one student, as I don't have any other information. Although, many students live with flat mates who are also students. If indeed the household had two students, than the expenditure would be double, and it should be considered a public student; After eliminating students assumed to be studying in private colleges, 210,324 students are left. The actual number of students studying in publically funded academic institutions is 207,353, so the estimation yield results that mirror reality.

Clune(1998), Dustmann et al. (2010) and Dustman and Frattini (2013) do not account for students who study in private academic institutions at all. They attribute the average expenditure per student to all students.

This implicitly assumes that the same share of immigrants attend private universities, as do natives, which should be substantiated. Also, the authors, as do other studies on the subject, attribute the expenditure on higher education solely to attending students. I, on the other hand, attribute the expenditure on higher education to students, but also to all workers. There has been extensive research on the market-wide benefits of investments in universities; investment in higher education was found to be the most important source of growth, together with investment in information technologies, at both industry and economy-wide levels (Jorgenson et al. 2003); "Research institutions contribute significantly to innovation processes in the respective regions by absorbing knowledge from beyond the region and making it available to local companies" (Fritsch et al.1999); Drucker et al. (2007) review several studies on the subject and conclude that the impact of universities on regional economic development is substantial through the production of knowledge, technology transfer rand industry-university programs, just to name a few. Numerous other studies have found that universities have a positive role on employment and earnings (for example, Beeson et al. 1990 and Lockett et al. 2003). Unfortunately, no studies were found to quantify the extent of impact that investment in universities has, so to be able to attribute it to workers. Nonetheless, consistent with the aforementioned research, I attribute 25% of the expenditure on academic education to workers and 75% of the expenditure to attending students.

As for the students share, I divide the total expenditure on academic education attributed to students (75% of ₪7,558 million - ₪5,668 million) by the number of students attending public academic institutions to result in an average annual benefit per student of ₪26,951. I attribute this average to each household with a student. The benefits for students in different fields (for example, medicine compared with social sciences) is not the same, and so is the benefit for students who study in academic colleges, rather than universities (the financing of universities is considerably higher). Nonetheless, these factors could not be distinguished. As for the workers share, I divide the total expenditure on academic education attributed to workers (25% of ₪7,558 million - ₪1,889 million) by the number of households with workers (households with a positive labor income) to result in an average annual benefit per household of ₪1,088. I attribute the average to each household with workers. I then sum each household's benefit for students and benefit for workers and calculate group averages. The overall average annual benefit per household form higher education is ₪3,404.

Government Employees Pensions – The expenditure refers to the pensions paid to former government workers. Supposedly the expenditure does not benefit current households directly, because the pensions are paid to workers that have provided government services in the past. Nonetheless, I attribute it to current households. A certain share of every government expenditure, goes to finance the pensions of government workers; i.e., when current households are provided a public service, part of expenditure on providing the service finances the pensions of government workers. In other words, it is part of the cost of providing every government service, thus, households should be attributed this cost. Current households are burdened with pensions of past government workers, as households in the future will be burdened with pensions of current government workers.

None of the studies mentioned this expenditure, probably because the pensions paid by each government ministry are included in the total expenditure of the ministry, which means that pensions are not separately attributed. Because most public expenditures carry a pensions portion, the expenditure on government pensions should be attributed to households according to the "amount" of government services that each household consumes; households that consume more public services, should be attributed a higher share of the pensions expenditure. Accordingly, I attribute the expenditure on pensions to each household in proportion to all government benefits that it receives (i.e. all the other expenditures attributed to households – education, healthcare, police, etc.), except its NII allowances receipts, since the total NII expenditure on allowances barely carries a pensions component (only a tiny portion of the NII expenditure on allowances goes to salaries, pensions, etc. the majority are the allowances themselves), and its domestic and foreign loans attribution, again, because it does not carry a pensions component at all.

In 2011, the government expended ₪11,596 million on pensions to government employees. In order to attribute this expenditure to households in proportion to the governmental benefits they receive, I sum up all the benefits that each household received (except NII allowances and domestic and foreign loans), and calculate its share out of the total benefits that all households received; I attribute this share of the expenditure on pensions to each household. I do it for each of the two scenarios with regard to the attribution of public goods and services (explained in the section on public goods and services, below), because each household's share of government benefits is different under the two scenarios. As a result of this method, each group is attributed its exact share in the receipts of all other government benefits. For example, under the baseline scenario, late immigrants from the FSU (group 1) received 13.6% of government benefits, so I attribute it 13.6% of the expenditures on government workers pensions. The overall average annual benefit per household from government workers pensions is ₪5,223 (under both scenarios, since only the share of the expenditure of each group varies with the scenario).

Public Housing and Rent Assistance – The government provides three forms of housing assistance – public housing, subsidized house purchase loans and rent assistance. Government expenditures on these totaled ₪2,012 million. Public housing provides beneficiaries subsidized-rent accommodation in government owned apartments. Households with a disabled individual who earns less than a certain threshold, households with three children or more who earns less than a certain threshold and recent immigrants are the main groups that enjoy the benefit. In 2011, the government expended ₪256 million on public housing. The Expenditure Survey details households who rent an apartment from a "public company", i.e. live in public housing; according to the survey, their number is 78,880, close to the number estimated by the Ministry of Housing and Construction - 75,500 (Fidelman 2011). I divided the expenditure on public housing by the number of households who benefit from public housing to yield an average annual benefit per household of ₪3,243. I attributed this average to each household who benefited from public housing.

The second form of government housing assistance are subsidized loans designated for house purchases. Again, the assistance is granted to low-income households with a large number of children, recent immigrants,

senior citizens and others who meet certain criteria. In 2011, the government expended ₪462 million on this item. Households who receive this sort of assistance could not be identified in the surveys. Nonetheless, the Budget Implementation File (Accountant General 2011), which details government expenditures down to the lowest level, reveals that at least ₪149 million were designated specifically for recent immigrants, ₪118 million were designated for other eligible households and ₪195 million were costs of managing the loans (I write "at least" for the first item, because recent immigrants might have benefited from the amount designated for other eligible households, but this could not be evaluated). I attributed the amount designated for recent immigrants to households in groups 1 and 3 (i.e. immigrants that arrived in Israel after 1990), in proportion to the number of households in each group (for example, group 1 comprises 71.8% of recent immigrants – groups 1 and 3 – so they were attributed 71.8% of the expenditure on recent immigrants). This assumes that households in group 1 and 3 enjoy the benefit equally. I attribute the amount designated for other eligible households, to groups 2,4,5 and 6, in proportion to the number of households in each group. Again, This assumes that households in these groups enjoy the benefit equally. Attributing the benefits by groups, and not households does not hurt the baseline results; as I am comparing groups, it doesn't matter which household in the group is attributed the benefit, but what is the extent of benefits that the group receives as a whole. Moreover, the study focuses on the fiscal impact of immigrants compared to all other groups, so the breakdown of benefits between the other groups is less significant. I attribute the amount spent on managing the loans to all groups, in proportion to their share of the loans; groups 1 and 3 received 55.8% of loans, so they are attributed 55.8% of the managing costs; the other groups are attributed the remaining 44.2%.

The third form of government housing assistance is rent assistance. The government subsidizes the rent of eligible households in amounts ranging from ₪134 to ₪3,000; the eligible population is similar to the population described with regard to households eligible for public housing, with the addition of abused women, street dwellers and others. In contract to public housing, rent assistance is granted for persons who live in non-government owned apartments (Zaira 2014). Again, households who receive this sort of assistance could not be identified in the surveys; the surveys do detail households who live in rented apartments, but not whether they receive any rent assistance, but the budget implementation file (General Accountant 2011) reveals that out of the total expenditure on rent assistance (₪1,294 million), at least ₪716 million were designated specifically for recent immigrants households, ₪560 million were designated for other eligible households and ₪18 million were the costs of managing the assistance. As before, I attributed the amount designated for recent immigrants to households in groups 1 and 3, in proportion to the number of *renting* households in each group (i.e. I attribute the benefit only to renting households, to be more precise). I attribute the amount designated for other eligible households, to groups 2,4,5 and 6, in proportion to the number of *renting* households in each group. Again, attributing this way assumes that renting households in each respective category ("recent immigrants" and "other") enjoy the benefit equally. I attribute the amount spent on managing the rent assistance to all groups, in proportion to their share of the rent assistance benefits; groups 1 and 3 received 55.3% of the rent assistance benefits, so they are attributed 55.3% of the managing costs; the other groups are attributed the remaining 44.7%.

The overall average annual benefit per household from public housing and rent assistance is ₪906.

Police – On the one hand, the police engages in public protection activates that benefit households fairly equally; these include terror prevention, public protection, border protection, road safety, illegal substances trafficking, economic crimes, etc. The expenditure on these does not markedly stem from the actions of one household or the other. On the other hand, the police engages in activities, mainly the prevention and investigation of crime and the apprehension of offenders, that, although benefit the entire public, are the result of the actions of specific households. Conceptually, the benefits derived from the former expenditure should be attributed equally to all households, while the expenditure on the latter should be attributed to households of the offenders. In practice, breakdown of police expenditure by activity is unavailable; therefore, I assume that 50% of the police budget was spent on public protection activities (₪3,047 million) and 50% was spent on crime related activities. I believe this, arbitrary as it may be, is more realistic than attributing all police expenditure to all households equally, as done by Clune (1998), Dustmann et al. (2010) and Dustman and Frattini (2013).

Attributing the public protection share of the expenditure to all households equally yields an average annual benefit per household of ₪1,377. Attributing the crime related share of the expenditure requires information on the nativity of offenders. The CBS (2014g) reports that in 2011, although Arabs compromise approximately 20% of the population, 39.8% of persons accused in criminal trials were Arab; Hornstein et al. (2009) report that in 2004, Arabs were involved in approximately 40% police "revealed cases" (cases in which a suspect was identified). Regarding the share of offenders from the FSU, the Israeli Police (2011) reports that in 2010, the latest year for which data was available, immigrants from the FSU who moved to Israel after 1990 were involved in 12.0% of police "revealed cases" and immigrants from other countries who moved to Israel after 1990 were involved in 3.2% of police "revealed cases"[50]. These figures are similar, or even lower, than their share in the population. Nonetheless, in the context of this study, these figures might underestimate the share of immigrants, because the definition used by the Israeli Police to identify immigrants is narrower – it includes only individuals who were not born in Israel, while the definition used in this study also identifies as immigrants individuals who live in households where only the head of the household was born outside Israel; in most cases, these are the children of the immigrants, which anyhow comprise a small share of offenders. Apart from Arabs and Recent immigrants, no further breakdown of offenders by nativity is available.

Due to these findings, 12.0% of the crime related expenditure (₪367 million) is attributed to group 1 (recent immigrants from the FSU); 3.2% of the expenditure (₪98 million) is attributed to group 3 (recent immigrants from other countries), 40.0% of the expenditure (₪1,223 million) is attributed to Arab households, the majority of which are part of group 6, while the remaining 44.8% (₪1,369 million) are attributed to groups 2,4,5 and 6 in proportion to the share of households in each group (the 44.8% of offenders could be from either of these groups, but could not be from group 1 or 3).

The overall average annual police benefit (or expenditure) per household is ₪2,754.

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[50] Out of 164,628 "revealed cases", immigrants were involved in 25,030 cases (15.2%); 19,774 were immigrants from the FSU and 5,256 were immigrants from other countries.

Incarceration – There are three types of prisoners – criminal, security and illegal immigrants; criminal prisoners are mostly Israeli, while security and illegal immigrants prisoners are mostly non-Israeli. In 2010, out of the total number of prisoners (19,094), 12,130 were criminal prisoners, while the rest were security prisoners and illegal immigrants (Israel Prison Service 2014). Approximately 11,000 of criminal prisoners were Israeli (Ministry of the Economy 2011); hence, 57.6% of prisoners were Israeli. 42% of Israeli criminal prisoners were Arab. Regarding the share of prisoners from the FSU, a transcript of Knesset subcommittee hearing on prisoners from the FSU (Knesset 2008) , reveals that in 2008, 1,086 prisoners were born in the FSU and immigrated after 1989 and 347 were immigrants born in other countries who immigrated after 1989; these were 9.0% and 2.9% of criminal prisoners in 2008 (12,063). Because no data is available for 2011, I assume that the share of immigrant prisoners were similar in 2008 and in 2011, so that also in 2011, 9.0% of criminal prisoners were immigrants from the FSU (i.e. 1,086) and 2.9% of criminal prisoners were immigrants from other countries (i.e. 349). Other sources detail similar share of immigrant prisoners (Knesset 2008, Israel Prison Service 2013); all point to a lower share of immigrant prisoners than their share in the overall population. Nonetheless, the Knesset figure might underestimate the share of incarcerated immigrants, in the context of this study, as it uses a narrower definition of who is identified as an immigrants than this study does, similarly to the definition used by the Israeli police, as described in the section about the police.

In 2011, the government expended ₪2,142 million on incarceration. Similarly to Dustmann et al. (2010) and Dustman and Frattini (2013), I attempt at attributing the expenditure on incarceration to households according to the nativity of the prisoners. Clune (1998) on the other hand, while acknowledging the need of attributing the expenditure as mentioned, refrains from it due to poor data, and attributes the expenditure equally to all households. Assuming that the cost of incarcerating criminal, security and illegal immigrant prisoners are similar, because 42.3% of prisoners were security prisoners. illegal immigrants or non-Israeli criminal prisoners, I attribute the same proportion of the expenditure (₪908 million) equally to all households, considering the expenditure on these prisoners as a public protection benefit, that is enjoyed equally by every households. The annual benefit per household is ₪409. The remaining 57.7% of the expenditure (₪1,234 million) is attributed to households according to the nativity of the Israeli prisoners; 9.0% of the expenditure (₪111 million) is attributed to group 1 (recent immigrants from the FSU), 2.9% of the expenditure (₪36 million) is attributed to group 3 (recent immigrants from other countries), 42.0% of the expenditure (₪518 million) is attributed to Arab households, the majority of which are part of group 6, while the remaining 46.1% (₪569 million) are attributed to groups 2,4,5 and 6, in proportion to the share of households in each group. The overall average annual incarceration benefit (or expenditure) per household is ₪965.

Social Welfare Services – Other - The expenditure refers to the budget of the Ministry of Social Affairs and Social Services after the subtraction of its expenditures that are aimed at the disabled population; because expenditures aimed at the disabled population could be easily attributed, they were dealt with separately, in the section “social welfare services - care for the disabled”. Apart from disabled individuals, the

Ministry also assists individuals and families with issues such as child welfare, at-risk youth, poverty, violence, addiction, etc. The services of the Ministry benefit the specific households who receive the service. In 2011, the government expended ₪2,618 on these social welfare services.

In order to attribute the expenditure to households who benefit from welfare services, information on the nativity of the beneficiaries is needed. The CBS (2013k) reports that in 2011, out of approximately 900,000 individuals who were registered at the local authorities' Departments of Social Services for specific "neediness grounds" (social services are mostly provided by the local authorities, with the budgetary assistance of the Ministry of Social Affairs and Social Services), 27.3% were Arabs, 12.4% were immigrants from the FSU who immigrated to Israel after 1990, 24.5% were immigrants from other countries without the specification of immigration year and 35.8% were non-Arab natives. The statistics underestimate the figures for immigrants in the context of this study (and therefore, overestimate the figures for natives), because this study also identifies as immigrants persons who were born in Israel but are living in a household where the head of household was born in a foreign country; for example, children of immigrants who were born in Israel were not identified as immigrants by the CBS, although in the context of this study, they are identified as immigrants. There are reports that children of immigrants are involved with welfare services in higher shares than their share in the population (for example, National Council for the Child 2011). Therefore, I will slightly "inflate" the figures for immigrants to account for the aforementioned underestimation (and "deflate" the figures for natives accordingly).

Following these findings, I attribute the social welfare services expenditure according to the nativity of beneficiaries. Because the social welfare services benefit all age groups (from infants to senior citizens), when attributing the benefits to more than one group, I attribute the expenditure in proportion to each groups share in the population (0+) of the relevant groups. Technically, it is done by dividing the attributed benefit by the population of the groups to yield an average annual per person, which I attribute to each household according to the number of persons in the household, one for each person (whether a child or an adult). 27.3% of the social welfare services expenditure (₪715 million) is attributed to Arab households, the majority of which are part of group 6, according to each household's share in the Arab population, 14.0% of the expenditure (₪366 million) is attributed to group 1 (recent immigrants from the FSU), 26.0% of the expenditure (₪681 million) is attributed to groups 2, 3 and 4 (immigrants other than recent immigrants from the FSU) in proportion to each group's share in the population and the remaining 32.7% of the expenditure (₪856 million) is attributed to groups 5 and 6 (natives) in proportion to each group's share in the population.

The overall average annual social welfare services benefit per household is ₪1,179.

Law Courts and Legal Affairs - Similarly to the Police (as detailed in the "police" section), the Ministry of Legal Affairs also deals with either activities that benefit the adult public fairly equally and are not the result of the actions of specific households (for example, Israel Corporation Authority, Equal Right Authority, state attorney, economic affairs cases, religious courts etc.), and with activities that are the result of the actions of specific households, mainly the prosecution of offenders and managing court hearings. The budget of the

Ministry of Legal Affairs could not be broken down into these two categories. Therefore, as with the police expenditure, I assume that 50% of the expenditure (₪1,312 million) is spent on each of these two activities.

I attribute the expenditure on activities that benefit the adult public amongst all households according to their share of the adult population (18+). I divide the total expenditure by the number of adults in the population to yield an average annual benefit per adult of ₪263. I attribute this average benefit for each household according to the number of adults in the households, one attribution per each adult.

In attributing the expenditure on activities that are the result of the actions of specific households, data on the nativity of individuals involved in court hearings is required. About 30.0% of court cases are criminal cases, whereas the majority of court cases (70.0%) are civil cases (Israel Court Administration 2012)[51]. With respect to the criminal cases, I apply the shares used to attribute police expenditure (the share of involvement of each population group in police cases, which are mostly criminal cases). I assume that because 30% of court cases are criminal cases, 30% of the expenditure (₪394 million) is spent on conducting criminal cases court hearings; 12.0% of the criminal cases expenditure (₪47 million) is attributed to group 1 (recent immigrants from the FSU); 3.2% of the expenditure (₪13 million) is attributed to group 3 (recent immigrants from other countries), 40.0% of the expenditure (₪157 million) is attributed to Arab households, the majority of which are part of group 6, while the remaining 44.8% (₪177 million) are attributed to groups 2,4,5 and 6 in proportion to their share of the adult population, similarly to the method used above (the 44.8% of individuals could be from either of these groups, but could not be from group 1 or 3). With respect to civil cases, there is no data on the nativity of individuals involved in these cases; therefore, I attribute the expenditure on civil cases (assumed to be 70% of the expenditure on court cases related activities - ₪918 million) amongst all households according to their share of the adult population, similarly to the method used above.

The attribution I use is different than the attribution used by Clune (1998), Dustmann et al. (2010) and Dustman and Frattini (2013). The former attributes all legal related expenditure equally among all households and the latter attribute all legal related expenditure according to the share of the prison population from each population group, ignoring the fact that the majority of court proceedings don't end up in incarceration, so attributing the expenditure according to the involvement in criminal cases only might be biased.

The overall average annual law courts and legal affairs benefit (or expenditure) per household is ₪1,182

Labor Market Affairs – Under this expenditure (₪1,738 million) I summed up two types of costs; the first are general costs associated with the labor market and likely to apply to most population groups at some point of their lives – these include labor market supervision and enforcement, employment encouragement programs, employment service (the body in charge of workers placement) and the professional training; these costs total ₪914 million. Because these costs also apply to the unemployed, and to individuals looking for a job,

51 In 2011, of all cases held at the Magistrate Courts, 20.7% were criminal cases; of all cases held at the District Courts, 20.6% were criminal cases. In addition to cases held at these courts, which are about 66.2% of cases held in all courts, 17.2% of all cases were held in Traffic Courts (mostly criminal cases) and the remaining 16.6% of all cases were held in Family and Labor Courts (mostly civil cases). So overall, when summing the criminal cases at the Magistrate Court, District Court and Traffic Courts, approximately 30.0% of cases held in all courts, were criminal cases.

I attribute these costs amongst all households according to their share of the adult population (18+). I divide the total expenditure by the number of adults in the population to yield an average annual benefit per adult of ₪183. I attribute this average benefit for each household according to the number of adults in the households, one attribution per each adult.

The other cost applies only to working women. To encourage low-income working women, the Ministry of the Economy subsidizes day care and afternoon child care facilities for their children; in 2011, the monthly subsidy for daycare, for example, ranged from ₪157 to ₪1,164, depending on the women's' household income per person. The total costs allocated was ₪824 million. Apart from low-income working women, the subsidy applies to additional populations, such as women who study full-time, women in certain villages, etc. (Ministry of the Economy 2014a). Neither survey details household who enjoy this benefit, so I attempt to identify the population most likely to receive the benefit. I identify women who meet the eligibility requirements; i.e. work more than 20 hours a week, live in a household with a child between the ages of 2 and 4 and whose household income per person is less than ₪4,000[52]. 108,395 women are identified in these manner, higher than the actual number of approximately 86,000 (Ministry of the Economy 2014b). Dividing the total expenditure by the number of eligible women yield an average annual benefit per eligible woman of ₪7,600. I attribute this average benefit for each eligible household.

I then sum each household's benefit from the two aforementioned expenditure and calculate group averages. The overall average annual benefit per household form labor market affairs is ₪783.

Disabled Holocaust Survivors - The government grants allowances to disabled holocaust survivors and Nazi war veterans. The monthly allowance depends on the disability grade and the income of the individual, and ranges between ₪2,200 and ₪8,812 (Holocaust Survivors Right Authority 2014). In 2011, the government expended ₪2,765 on this benefit.

Neither surveys detail individuals who enjoy this benefit; consequently, I attribute these benefits to the population most likely to enjoy them. Eligible individuals must have moved to Israel prior to 1953. Therefore, I identify the number of individuals in each household who were born in Europe and have moved to Israel prior to 1954[53]; these should be heavily represented in groups 2 and 4 (early immigrants); the only incidence in other groups (either natives, or late immigrants) would be if a head of household married an individual who married an eligible individual. It is sensible to assume that disability is distributed equally amongst this group (as, for example, the disability is distributed among the population, which can be inferred from the similar disability allowance for all groups), so attributing the average allowance for each eligible household (even if I don't know whether it received the allowance or nor), at least in this case, is reasonable. It must be noted that disability cannot be deduced from the fact that a household receives a disability allowance, since the disability allowance is not granted to Holocaust Survivors. I divide the total expenditure by the number of estimated eligible

[52] I take the middle household income per persons that entitled a women to benefit from the subsidy.
[53] The Income Survey details the immigration year of individuals according to year groups. The relevant year groups are "till 1947" and "1948-1954".

individuals (105,260) to yield an average annual benefit per holocaust survivor of ₪26,266. I attribute this average to each household – one for each estimated eligible individual; I then calculate group averages. The average annual benefit per household is ₪1,245.

FSU Immigrants Specific Expenditures – The Budget Implementation File (Accountant General 2011) was scouted for significant expenditures aimed specifically at FSU immigrants, without similar expenditures aimed at other population groups. Four expenditures items were included, the largest one being the budget of the Ministry of Immigrant Absorption; the expenditures are specified in Table 1D in Appendix 1**.** An additional budget item aimed specifically FSU immigrants (housing assistance) is dealt with separately in the "public housing and rent assistance" section. Included items benefit recent immigrant only, not immigrants who came prior to 1990 which are not eligible to the majority of benefits.

Overall, the government expended ₪1,590 million on FSU immigrants specific costs; these are attributed to group 1 (recent FSU immigrants) only. The average annual benefit per recent FSU immigrant household is ₪4,944. Overall, the average annual benefit per household is ₪716.

Transfers to Religious Educational Institutions – The government finances part the education of men over the age of 18 in Yeshivas (High Yeshivas for non-married men and Kolel for married men). The beneficiaries are Ultra-Orthodox and Conservative Jewish men over the age of 18. In 2012, the monthly subsidy per Kolel student (the majority of the beneficiaries are Kolel students) was ₪1,040; students in other eligible institutions receive slightly different subsidies (Religious Institutions Department 2014). The government expended ₪1,164 million on this benefit in 2011.

Neither surveys detail the men who enjoy this benefit, so I attempt at identifying them. The students who attend the High Yeshivas or Kolels are religious, and most religious men study in Yeshivas prior to attending these institutions. Therefore, I identify men above the age of 18 who attended a Yeshiva as their last study institution (using the income survey item entitled "last school type"). As Levin et al. (2010) report, this method is one of the methods used in identifying the Ultra-Orthodox population in surveys. I divide the total expenditure on religious educational institutions by the number of households identified as containing eligible men (95,130) to yield an average annual benefit per eligible men of ₪12,234. I attribute this average to each eligible household and calculate group averages. The overall average annual benefit per household from transfers to educational institutions is ₪524.

Senior Citizens – Under this expenditure I included the two considerable costs specifically aimed at the senior citizens population; these include the following - the small budget of the Ministry of Senior Citizens who provides several services to senior citizens (₪56 million) and public transportation subsidies for senior citizens (₪241 million). So, overall ₪297 million are attributed.

I attribute the expenditure according to the number of individuals over the age of 65 in each household. Dividing the expenditure by the overall number of individuals over the age of 65 (720,506) yields an average

annual benefit per senior citizen of ₪412. I attribute this average to each household – one for each individual over the age of 65; I then calculate group averages. The average annual benefit per household is ₪134.

Social Welfare Services - Care for the Disabled – The expenditure includes two departments that operate under the hospices of the Ministry of Social Affairs and Social Services – the Rehabilitation Department and the Mental Handicap Care Department. Both provide services to persons recognized as disabled. The government expended ₪1,833 million on these services. I attribute this expenditure equally to all households that receive a disabled allowance; receiving the allowance means that there is a disabled person in the household, and there probably aren't considerable number of legally disabled who prefer not to receive the allowance, so it is a good proxy for the presence of disabled persons (mentally disabled are also eligible to receive the disability allowance).

Dividing the total expenditure by the number of households with a disabled person (212,256) yields an average annual benefit per disabled person of ₪8,636; I attribute this average to each household with a disabled person. I then calculate group averages. The average annual benefit per household is ₪826.

Public Transportation Subsidies for Youth – The government expended ₪200 million on subsidies to the public transportation fare of children under the age of 18.

I attribute the expenditure according to the number of children between the ages of 5 and 18 (the age group likely to use public transportation) in each household, assuming equal use; a sensible assumption considering the population are children who are not allowed to drive. Dividing the expenditure by the overall number of children under the age of 18 (1,686 million) yields an average annual benefit per youth of ₪119. I attribute this average to each household – one for each youth; I then calculate group averages. The average annual benefit per household is ₪90.

Adjustments – The overall attribution of government expenditures should be lower by a mere ₪23 million, because of various adjustments. Similarly to the attribution of government workers pensions, I attribute the adjustments to each household in proportion to the overall government benefits that it received. Households that received higher government benefits (education, healthcare, police, etc.) are attributed a higher adjustment (meaning, a more negative adjustment). The average annual benefit per household is -₪10.

Public Goods and Services and Other Expenditures Attributed Equally to Households – Public goods and services are non-excludable and non-rivalrous; non-excludability means that individuals cannot be excluded from use; non-rivalrousity means that the use of one individual does not diminish the use of others. A commonly used example of a public good is national defense, but other examples include infrastructure, national parks, policing services, etc. (Cowen 2008). In the context of this study, non-excludability means that the goods and services can be consumed by every household; and are indeed, most likely used by every household, thus, should be attributed accordingly.

The OECD (2013) and Dustmann and Frattini (2013) further breakdown public goods and services into "pure" public goods and services and "congestible" public goods and services. "Pure" public goods and services are completely non-rival in consumption. The costs of providing these goods and services are not suppose to increase appreciably with immigration; in other words, the marginal cost of providing them to immigrants are zero. Regardless of immigration, these goods and services will be provided at the same extent, and at the same cost. Due to immigrants, natives benefit from "implicit savings" because the costs of paying for these goods and services are distributed among a larger number of people, lowering the average cost per native household. Nonetheless, the OECD (2013) notes that some public goods, such as national defense, grow proportionally with GDP, challenging the "pure" public good classification.

The following government expenditures might be classified as "pure" public goods and services – national defense, financial and fiscal affairs, foreign affairs, public security n.e.c., tourism development, government, parliament, president's office and prime minister's office, communications affairs, expenditures n.e.c. (bodies such as the Israeli Mapping Center and the Ombudsman), development costs n.e.c. (the government computerization project, government buildings construction, etc. and science infrastructure.

"Congestible" public goods and services are somewhat rival in consumption. The increase in population, due to immigration, would probably be accompanied by higher costs of providing them; i.e. the expenditure on these goods and services will increase with immigration, albeit probably not at the same extent as the increase in population. In other words, their marginal cost is lower than the average cost. These include policing services, fire protection services, electricity, water and gas infrastructure, etc. For example, with electricity, an immigrant that settles in an already settled community imposes minimal costs of connecting his household to the grid, as the power plants already exists, the grid is laid out, etc.

The following government expenditures might be classified as "congestible" public goods and services – transportation, transfers to local authorities (these finance services provided by local authorities, thus, benefiting most households in Israel), market subsidies (these include emergency food and fuel reserves, public transportation, agriculture, water supply and other subsidies), national infrastructure (gas, oil, water and electricity infrastructure), industry R&D, infrastructure and subsidies, interior affairs, culture and sports, agriculture, fire protection, housing infrastructure, religious services and environmental affairs

There are additional public goods and services not included herewith since they fully or partly benefit households differently, thus, require an attribution to beneficiary households only, in contrast with the public goods and services that benefit all households, which are attributed accordingly. The expenditure on the former had already been attributed to households in previous sections.

In attributing the expenditure on these public goods and services to households, studies take different approaches. Because there is no clear way of attributing these expenditures to households, some studies refrain from attributing them to households at all (for example, Tonkin 2014 and OECD 2013a, which refrains from attributing some of these expenditures to households). On the other hand, if these expenditures are attributed to households, Clune (1998) like most other studies (Chamberlain and Prante 2007, OECD 2013a and others), attributes them equally to all households, as it is assumed that all, or most, households benefit from these goods

and services, and to a similar extent (average cost approach). Dustmann et al. (2010) and Dustmann and Frattini (2013) construct two scenarios; for the first scenario, the expenditure on these goods and services is attributed equally to all population groups, according to their share in either the adult population (Dustmann and Frattini 2013) or the entire population (Dustmann et al. 2010); for the second scenario, the expenditure on "pure" public goods and services is attributed solely to natives (marginal cost approach), as the cost of providing them to immigrants are assumed to be close to zero, while the expenditure on "congestible" public goods and services is attributed as in the first scenario.

Even when an expenditure benefits the all households population, and each household benefits from it equally, it is still not clear how to the attribution to the different population groups should be made. Three attribution methods lead to different results.

First, benefits can be attributed to all households equally; i.e. every household is attributed the same benefit. This method, used by most studies, is rationalized by a cost-of-service approach, used throughout this study, which attempts at attributing expenditures to beneficiaries (in this case, households) according to the cost of providing the service to each beneficiary. A fitting example is community policing; the costs of providing the service to every household in a particular neighborhood are similar, no matter how many people reside in the household and whether they are children or adults. Thus, the cost-of-service approach posits that the expenditure should be attributed to all households equally, with every household attributed the average cost of providing the service. On the other hand, proponents of a benefit driven approach would argue that although the cost of providing the service to households is equal, different households benefit from the service differently, since each household has a different number of people benefiting from the service. According to this approach, benefits should be attributed to all individuals equally, not all households (as detailed in the third method below). Another example is electricity, gas and water infrastructure; the cost of connecting a house is the same, regardless of the number of persons residing in the households, or their age composition.

Second, benefits can be attributed to all adults equally; i.e. every adult is attributed the same benefit, which is then aggregated to the household level. This method is appropriate if the expenditure of providing the benefit is affected by the number of adults, which is the same as saying that only adults benefit from the expenditure. This method yields slightly different results than attributing the benefits to all households equally, since the number of adults in each household differ between population groups (for example, while the national average of the number of adults per households is 2.25, the average number of adults in population group 1 – late immigrants from the FSU – is 2.07, while the average number of adults in population group 5 – natives – is 2.36). A fitting example is a different service provided by the police – traffic control – since mostly adults able to drive benefit from it, the attribution to each population group should only be affected by its number of adults.

Third, benefits can be attributed to the entire population equally; i.e. every person is attributed the same benefit, which is then aggregated to the household level. This method is appropriate if the entire population benefits from an expenditure equally, whether children or adults. As with the second method, this method yields different results than attributing the benefits to all households equally, since the number of persons in each household differ between population groups (as detailed in Table 3). A fitting example is national defense;

every person in the population benefits from the public and private safety it provides. Apart from Dutmann et al. (2010) no studies use this method, since most studies use the household, not the individual, as its unit of analysis, and consider it as a unified entity that enjoys benefits as a whole; or, because it requires a few extra calculations compared with the first method. Nonetheless, for public goods and services, I feel that this is the best attribution method, as it captures the notion of a public good, one that is provided to all and consumed by all.

For most public goods or services one can think of justifications for using more than one method, as exemplified by the community policing services example above. Also, the expenditures on these public goods and services are significant, comprising of a considerable 24.2% of government expenditures. Therefore, I examine two scenarios; one in which the expenditures on public goods and services are attributed to all households equally, as in most other studies (baseline scenario), and one in which the expenditures are attributed to every household according to the number of persons residing in the household (alternative scenario).

For the baseline scenario, I attribute each household the average cost per household of providing the public good or service. I divide the total expenditure on each public good or service by the number of households, yielding the average cost per household; then, I attribute this cost to every household. This means that each population group is attributed its exact share in the number of households; for example, 14.5% of households are of group 1, thus group 1 is attributed 14.5% of the expenditure.

For the second scenario, I divide the total expenditure on each public good or service by the number of persons, yielding the average cost per person; then, I attribute the average cost per person to each household according to the number of persons residing in the household, one average cost per person. This means that each population group is attributed its exact share in the number of persons, which differs from its share in the number of households, since the average number of persons per household varies between population groups. This method yields different results than the baseline scenario for the groups whose number of persons per household deviates most from the mean number of person per household for the whole population. For example, while group 1 (late immigrants from the FSU) share in the number of households is 14.5%, it's share in the number of persons is only 11.2%, since households in group 1 are smaller on average; thus, its attributed benefit per household from each public good or service is considerably smaller than its attributed benefit per household under the baseline scenario. Conversely, 59.2% of households are from group 5 (natives), while the share of persons from group 5 is 67.9%; thus, its attributed benefit per household from each public good or service is considerably higher than its attributed benefit per households under the baseline scenario. Because public goods and services comprise such a large share of government expenditure, these difference affect the results markedly.

As mentioned, Clune (1998) examines a scenario where expenditures on "congestible" public goods and services are attributed solely to natives, since the marginal cost of providing them to immigrants is zero. To the best of my knowledge, Clune (1998) and Simon (1981) are the only authors to do so, and Simon's study could not be considered a comprehensive one. Examining such a scenario for Israel would not be fruitful due to a few factors. First, apart from the influx of immigrants from the FSU, Israel, due to its status as the self-proclaimed

homeland of the Jewish people, has experienced immigration waves throughout its history, since its establishment; the classification used for this study identifies approximately 40% of households as households in which the head of the household was foreign-born, 50% of which are households in which the head of household immigrated to Israel before 1990 – more than 20 years ago. This raises the question of who should be attributed the expenditures on "pure" public goods and services – Clune (1998) attributes them solely to natives, but in the case of Israel, should the immigrants who are living in Israel for more than 20 years (approximately 20% of the households) be considered natives (and attributed the expenditure), or should they be considered immigrants (and not be attributed the expenditure). Even with respect to immigrants that moved to Israel after 1990, there are still a considerable number of whom are living in Israel for many years, should they be attributed no share of the expenditure, although they have been benefiting from the goods and services for numerous years. It will be difficult to justify any exact point of time where from that point on, the marginal cost of providing the goods and services to new immigrants is zero, and expenditures attributed solely to natives and immigrants who have been living in the country before this point in time. Second, the scenario of attributing the expenditures to natives matters, according to Clune (1998), because if immigrants were not allowed to arrive at the UK, natives would have to bear the expenditures all by themselves. This "what-if" scenario is not relevant for Israel, because Israel never had, and probably never will, have a restrictive immigration policy with respect to Jewish immigrants; Israel accepts most Jewish immigrants without prerequisites and with open arms. Natives in Israel "knew" throughout the ages, that the burden of expenditures will be shared by future Jewish immigrants. Third, attributing expenditure to natives only, could only be rationalized by a cost-of-service approach, in which expenditures are attributed solely according to the costs of providing the service, regardless of who benefits from the expenditures; it cannot be rationalized by a benefit driven approach, in which expenditures are attributed according to whoever benefits from them, because immigrants indeed benefit from "pure" public goods and services. Because the benefit driven approach has been a guiding light throughout this study, ignoring it completely when dealing with such a large share of expenditures is unreasonable. Lastly, as mentioned previously, it is not exactly clear if these "pure" public goods indeed do not grow with the increase in population (OECD 2013a). Because of these reasons, I refrain from examining such a scenario.

Domestic and Foreign Loans – As detailed in the revenues attribution section, after canceling out revenues from domestic and foreign loans with the expenditures on domestic and foreign loans, ₪18,502 million in expenditures remain to be attributed to households. As with public goods and services, how these expenditures should be attributed is unclear. The corresponding discussion mirrors the debate, narrated above, over the attribution of public goods and services. Accordingly, authors attribute these expenditures differently; Clune (1998), the OECD (2013), as well as most other studies refrain from attributing these expenditures to households, while Dustmann et al. (2010) and Dustmann and Frattini (2013) allocate it as a public good, attributing it equally to all households, according to their share of the adult population, under the basic scenario; and solely to native households under an alternative scenario, reasoning that the public debt isn't influenced by the increase in population due to immigration.

Whatever the attribution method be, first, the reasoning behind attributing these expenditures should be explicated. The current expenditures on loans are the result of the consumption of previous generations, therefore, it can be argued that it shouldn't be attributed to current households. However, in the majority of cases, current households are the ones who enjoyed from the consumption in the past. Moreover, the attribution of the expenditures on loans could be considered a benefit to current generations because it lowers the public debt burden on households (lowering the debt per capita).

Following Dustmann et al. (2010) and Dustmann and Frattini (2013), I attribute this expenditure as a public good; as other attributed public goods and services, I construct two scenarios. In the first scenario, I attribute the expenditure to all households equally (baseline scenario); in the second scenario, I attribute this expenditure to all persons equally (alternative scenario). The attribution method for both is similar to the method explained in the previous section regarding the attribution of public goods and services. The average annual benefit per household is ₪8,334.

Government Revenues Attribution Results

Table 8 and Table 9 detail the average annual taxes and fees contributions and NII contributions, respectively, by population group, and by item. In parentheses are the shares of revenues contributed by each population group out of the total government revenues from the item (government revenues refer to revenues contributed by households). The tittles of the taxes and fees items do not necessarily correspond to the titles appearing in the Government Revenues Annual Report 2011-2012 (Israel Government Revenues Administration 2013), also detailed in Table 4, since attributing the taxes and fees to households required a different grouping of certain taxes; for example, the "fuel excise taxes" category below includes the fuel taxes that were grouped into two different categories in the Government Revenues Annual Report - "import excise tax" and "tobacco tax".

As detailed in each respective section, different scenarios were employed for the attribution of four items – corporate income tax, other revenues, unattributed taxes and fees, and adjustments. To recall, the baseline corporate income tax scenario attributed 75% of revenues to households in proportion to their capital income and 25% of revenues to households in proportion to their labor income; the shares used for the alternative scenario were 50% for both capital and labor income. The baseline "Other" revenues scenario attributed revenues equally to every household; the alternative scenario attributed revenues equally to every person. Under each corporate income tax scenario, the estimated revenues contributed by tourists foreigners were different; in addition, these revenues were attributed to households either equally to every household, or equally to every person. Thus, overall four different scenarios combinations were examined for the attribution of the revenues contributed by tourists and foreigners; these are part of "unattributed taxes and fees" item; subsequently, four different scenarios are detailed for this tax item, and for the total contributions. In order to facilitate the discussion on the scenarios, they will be titled as follows:

- Scenario 1 (baseline scenario): corporate income tax baseline scenario, taxes and fees attributed equally to households.
- Scenario 2: corporate income tax baseline scenario, taxes and fees attributed equally to persons.
- Scenario 3: corporate income tax alternative scenario, taxes and fees attributed equally to households.
- Scenario 4: corporate income tax alternative scenario, taxes and fees attributed equally to persons.

The baseline scenario is detailed in the table below; the alternative scenarios are detailed in Table 2A in Appendix 2. Additionally, the results of alternative grouping of populations are detailed in Table 2B in Appendix 2.

Table 8 –Annual Government Taxes and Fees Contributions, by Group*, ₪, 2011

	Group						
	1	**2**	**3**	**4**	**5**	**6**	**National Average**
Share of Households (Expenditure Survey)	13.7%	2.9%	5.4%	16.5%	2.3%	59.2%	100%
Direct Taxes (*baseline scenario)*	16,437	41,929	17,223	39,223	52,767	46,900	39,844
	(5.7)	(3.1)	(2.3)	(16.2)	(3.0)	(69.7)	
Income Tax (*baseline scenario*)	15,528	38,853	14,938	37,006	48,771	44,083	37,382
	(5.7)	(3.0)	(2.2)	(16.3)	(3.0)	(69.8)	
Salaried Employees and Self-Employed	10,999	26,327	9,471	16,545	30,097	23,091	19,874
	(7.6)	(3.9)	(2.6)	(13.7)	(3.5)	(68.8)	
Corporate (*baseline scenario*)	3,727	11,121	5,232	14,145	13,990	12,646	11,256
	(4.5)	(2.9)	(2.5)	(20.7)	(2.9)	(66.5)	
Corporations Managers	308	0	0	1,022	207	5,609	3,535
	(1.2)	(0.0)	(0.0)	(4.8)	(0.1)	(93.9)	
Capital Markets and Dividend Deductions	494	1,405	234	5,294	4,478	2,737	2,717
	(2.5)	(1.5)	(0.5)	(32.1)	(3.8)	(59.6)	
Salary Expenditure Taxes	899	1,332	1,302	1,127	1,718	1,308	1,232
	(10.0)	(3.2)	(5.7)	(15.1)	(3.2)	(62.8)	
Employer Tax	100	105	107	107	115	110	108
	(12.7)	(2.9)	(5.3)	(16.4)	(2.4)	(60.3)	
Non Profit Organizations Value Added Tax	410	526	553	559	706	610	571
	(9.9)	(2.7)	(5.2)	(16.1)	(2.8)	(63.2)	
Financial Organizations Value Added Tax	389	701	642	461	897	588	553
	(9.7)	(3.7)	(6.3)	(13.7)	(3.7)	(62.9)	
Real Estate Taxes	11	1,744	982	1,090	2,278	1,510	1,231
	(0.1)	(4.1)	(4.3)	(14.6)	(4.3)	(72.6)	
Property Tax	-	-	-	-	-	-	-
Purchasing Tax	0	1,633	752	973	1,653	1,422	1,128
	(0.0)	(4.2)	(3.6)	(14.2)	(3.4)	(74.6)	
Appreciation Tax	11	111	230	117	625	88	103
	(1.4)	(3.1)	(12.1)	(18.8)	(14)	(50.6)	
Sell Tax	-	-	-	-	-	-	-
Adjustments	-342	-572	-362	-509	-664	-632	-557
	(8.4)	(3.0)	(3.5)	(15.1)	(2.7)	(67.2)	
Indirect Taxes	22,117	34,637	24,570	27,413	38,134	39,275	34,011

	(8.9)	(3.0)	(3.9)	(13.3)	(2.6)	(68.3)	
Value Added Tax	15,525	21,254	16,650	19,211	25,884	26,699	23,212
	(9.2)	(2.7)	(3.9)	(13.6)	(2.6)	(68.1)	
Customs Duties	393	424	359	390	683	605	524
	(10.3)	(2.4)	(3.7)	(12.3)	(3.0)	(68.4)	
Excise Taxes[1]							
Vehicles	964	7,241	3,754	3,016	5,754	3,658	3,340
	(4.0)	(6.3)	(6.0)	(14.9)	(4.0)	(64.8)	
Fuel	2,679	3,458	2,075	3,085	3,774	5,260	4,289
	(8.6)	(2.4)	(2.6)	(11.9)	(2.0)	(72.6)	
Tobacco	1,814	1,719	1,404	1,384	1,535	2,629	2,194
	(11.3)	(2.3)	(3.4)	(10.4)	(1.6)	(70.9)	
Stamp	2	2	2	2	2	2	2
	(14.5)	(2.9)	(4.9)	(16.2)	(2.3)	(59.2)	
Other Excise Taxes							
Alcohol	465	254	157	137	132	165	203
	(31.4)	(3.7)	(4.2)	(11.2)	(1.5)	(48.1)	
Cellular Phone	181	186	85	92	0	82	98
	(25.3)	(5.5)	(4.7)	(15.4)	(0.0)	(49.1)	
Spare Vehicle Parts	58	78	45	51	87	117	92
	(8.5)	(2.4)	(2.6)	(9.1)	(2.2)	(75.1)	
Electronics	36	20	40	46	282	59	56
	(8.7)	(1.0)	(3.8)	(13.3)	(11.5)	(61.7)	
Fees	1,034	1,673	887	1,300	1,663	1,769	1,538
	(9.2)	(3.2)	(3.1)	(13.9)	(2.5)	(68.1)	
Vehicles	764	1,308	607	1,028	1,292	1,340	1,168
	(9.0)	(3.3)	(2.8)	(14.5)	(2.5)	(67.9)	
Ministry of Justice	72	128	76	63	109	121	102
	(9.7)	(3.7)	(4.0)	(10.2)	(2.4)	(69.9)	
Ministry of the Interior	104	101	136	94	114	154	134
	(10.7)	(2.2)	(5.5)	(11.6)	(2.0)	(68.1)	
Ministry of Public Security	93	136	68	114	147	155	134
	(9.5)	(3.0)	(2.7)	(14.1)	(2.5)	(68.2)	
Other Revenues (*Baseline Scenario*)							11,773
Unattributed Taxes (*Baseline Scenario*)	14,865	20,881	15,715	18,847	24,319	22,753	20,628
	(9.9)	(3.0)	(4.1)	(15.1)	(2.7)	(65.3)	

Total (including National Insurance Institute Contributions) (*Baseline Scenario*)	82,998 (8.8)	135,839 (3.1)	82,413 (3.4)	114,909 (14.7)	152,108 (2.7)	146,900 (67.3)	129,178

* All calculations are within group averages.
Source: own calculations – CBS 2011 Expenditure Survey (2013c), CBS 2011 Income Survey (2013a) and the Israel Government Revenues Administration 2011-2012 Annual Report (2013).

[1] Excise tax contributions from vehicles and spare vehicles parts also include customs duties revenues on these items.

Table 9 –Annual National Insurance Institute Contributions, by Group*, ₪, 2011

	Group						
	1	**2**	**3**	**4**	**5**	**6**	**National Average**
Share of Households (Expenditure Survey)	13.7%	2.9%	5.4%	16.5%	2.3%	59.2%	100%
Social Security	10,689 (10.4)	16,450 (3.4)	7,762 (3.0)	10,196 (11.9)	15,828 (2.6)	16,414 (68.8)	14,124
Health Insurance	6,443 (11.2)	9,127 (3.4)	4,847 (3.3)	6,687 (14.0)	8,304 (2.4)	8,710 (65.6)	7,860
Total	17,133 (10.7)	25,577 (3.4)	12,609 (3.1)	16,883 (12.7)	24,132 (2.5)	25,123 (67.6)	21,984

* All calculations are within group averages.
Source: own calculations – CBS 2011 Expenditure Survey (2013c) and the NII 2011 Annual Report (2012).

The average Israeli household contributed ₪39,844 in direct taxes (30.8% of all taxes and fees revenues), ₪34,011 in indirect taxes (26.3%), ₪1,538 in fees (1.2%), ₪21,984 in NII payments (17.0%) and ₪31,844 in other taxes and fees (mostly taxes and fees that did not entail a clear household attribution method, such as taxes and fees paid by corporations and tourists and foreigners) (24.7%).

Overall, second generation –FSU households had the highest contributions – ₪152,108, while late immigrant households from the FSU and from other countries had the lowest contributions - ₪82,998 and ₪82,413, respectively. Native households had the second-highest contributions - ₪ 146,900. The contributions of natives were 78% and 77% higher than the contributions of late immigrants – FSU and late immigrants – other, respectively. Early immigrants had significantly higher contributions than late immigrants; early immigrants – FSU contributed ₪135,839, while early immigrants – other contributed ₪114,909.

Late immigrants – FSU households were 13.7% of households, but contributed only 8.8% of government revenues (36% lower their "appropriate" contribution); late immigrants – other were 5.4% of households, but contributed only 3.4% of government revenues (38% lower than their "appropriate" contribution). Conversely, second generation – FSU were 2.3% of households, but contributed 2.7% of government revenues (17% higher than their "appropriate" contribution) and natives were 59.2% of households,

but contributed 67.3% of government revenues (14% higher than their "appropriate" contribution). With regard to early immigrants, FSU immigrants contributed a share that is higher than their share in number of households (contributed 3.1% of government revenues, while they are only 2.9% of households), and other immigrants contributed a share that is lower than their share in the number of households (contributed 14.7% of government revenues, although they are 16.5% of households).

Overall contributions mostly correspond to the income of each population group, but not absolutely. Second generation – FSU households earned the highest income, and also had the highest overall contributions; Late immigrant households from both FSU and other countries earned the lowest incomes and also had the lowest overall contributions. However, the income of early immigrants – FSU households was the second highest (5% higher than the income of native households), but their contributions were only the third highest (8% lower than the contributions of native households). This could be explained by the fact that although early immigrants – FSU had higher labor income than natives, their capital income was considerably lower, thus, they were attributed lower corporate income tax, corporations managers and markets and dividend deductions contributions.

Because of the regressive nature of direct taxes, which taxes higher incomes at a much higher rates than lower income, and the fact that lower income population groups own less capital, lower income population groups contribute considerably less than what their income would "entail". Late immigrants from both the FSU and other countries earned income that was 20% lower than the average income, but their contributions were between 37% and 38% lower than the average contribution. Early immigrants – other earned income that was 5% lower than the average income, but their contributions were 11% lower than the average contribution. Conversely, second generation – FSU households, early immigrants – FSU households and native households earned an income that was 28% higher, 11% higher and 6% higher than the average income, but contributed "only" 18% higher, 5% higher and 14% higher than the average contribution.

The specific taxes and fees items mostly sustained the relations between the overall contributions of the different population groups; i.e. groups that had a higher than average overall contribution, mostly had a higher than average contribution with respect to a specific tax or fee item as well. Exceptions mainly occur with consumption taxes that reflect the different consumption patterns of the population groups with respect to differently taxed items (i.e. vehicles, tobacco, alcohol, etc.). For example, the contributions of late immigrants from the FSU and from other countries were lower than the average contribution for most taxes and fees items, in accordance with their lower than average overall contribution (for most taxes and fees the two population groups also contributed the lowest amounts). The exceptions were alcohol excise taxes, for which the contributions of the late immigrants – FSU were 130% higher than the average contribution; vehicle excise taxes, for which the contributions of late immigrants – other were 12% higher than the average contribution; and financial organization value added tax, for which the contributions of late immigrants – other were 16% higher than the average contribution. Conversely, the contributions of second generation – FSU and native households were higher than the average contribution for most taxes and fees items, in accordance with their higher than

average overall contribution (for most taxes and fees the two population groups also contributed the highest amounts).

The finding that the relations between the contributions of the different population groups held for most tax and fees items, certainly the major ones, means that conclusion with regard to the contribution of each population group, would have been held, even if the revenues for which the attribution method can be considered as disputed were not attributed to households; these include the revenues that were contributed by corporations and tourists and foreigners (corporate income tax and unattributed taxes and fees), for which the literature is disputed on how they should be attributed to households, or whether they should be attributed at all. Even if these were not attributed to households, conclusions with regard to the contributions would have been similar.

The biggest differences in contributions between population groups were with respect to the direct taxes contributions, specifically income tax contributions, which include the taxation of labor and capital income. Again, this stems from the regressive nature of direct taxation and the difference in ownership of capital. Late immigrants – FSU and late immigrants – other earned the lowest incomes (labor and capital), therefore, their income taxes contribution were the lowest - ₪15,528 and ₪14,938, which were 65% and 66% lower than the income taxes contribution of natives (₪44,083), respectively; and 68% and 69% lower than the income taxes contribution of second generation – FSU households (₪48,771), respectively. With respect tot the taxes that were attributed according to households' capital income, late immigrants fared exceptionally bad. The income taxes contributions of early immigrants, from the FSU and from other countries, were between 12% and 24% lower than the direct taxes contribution of second generation – FSU and natives households.

Differences in contributions were less substantial with respect to other taxes and fees, specifically indirect taxes. This stems from the fact that lower income households spend a higher share of their income on consumption (sometimes, beyond their means), while higher income households spend a lower share of their income on consumption. Hence, the differences in consumptions are moderated with respect to differences in incomes (the former projects on direct taxes contribution, the latter on indirect taxes contribution). This occurs despite the fact that natives have significantly larger households, which supposedly entails higher consumption. Late immigrants – FSU and late immigrants – other had the lowest indirect taxes contributions - ₪22,117 and ₪24,570, which were 44% and 37% lower than the indirect taxes contribution of natives (₪39,275), respectively; and 42% and 36% lower than the indirect taxes contribution of second generation – FSU households (₪38,134), respectively. The indirect taxes contributions of early immigrants, from the FSU and from other countries, were between 9% and 31% lower than the indirect taxes contribution of second generation – FSU and natives households.

More general insights can be learnt when joining similar population groups (detailed in Table 2B in Appendix 2). It can be concluded that late immigrants (FSU and other countries) had the lowest contributions, early immigrants (FSU and other countries) had higher contributions and natives (both second generation – FSU and natives) had the highest contributions. Altogether, all immigrants had considerably lower contributions than natives (₪100,580 compared with ₪147,095 – 32% lower). Taking into account nativity, immigrants from the

FSU (late and early) had the lowest contributions (₪92,269), immigrants from other countries (late and early) had higher contributions (₪106,906) and natives had the highest contributions (₪147,905).

The three alternative scenarios (detailed in Table 2A in Appendix 2**)** produced similar results to the baseline scenario; mostly the relations between the contributions of the different population groups remained the same, and only the scale of the differences slightly changed. Under scenarios 2 and 4, in which relevant revenues were attributed equally to every person, as opposed to every household, the contributions of populations groups whose households are relatively larger increased (mainly, natives and late immigrants – other whose household number of persons are 3.83 and 3.43, respectively, as opposed to between 2.40 and 2.73 for the other population groups), while the contributions of population groups whose households are relatively smaller (mainly late immigrants – FSU and late immigrants – other) decreased. The opposite occurred under scenarios 1 and 3, in which relevant revenues were attributed equally every household. When comparing the two corporate income tax attribution scenarios, under scenarios 1 and 2, in which a higher share of corporate income tax revenues were attributed in proportion to households' capital income, as opposed to labor income, the contributions of the lower income population groups, which own relatively less capital (mainly late immigrants – FSU and late immigrants – other), were lower than under scenarios 3 and 4, in which a lower share of corporate income tax revenues were attributed in proportion to households' capital income.

Nonetheless, neither of these alternative attributions changed the relations between the contributions of the population groups (i.e. the position of each population group in the overall contributions ladder), except for the contributions of late immigrants – FSU and late immigrants – other, which were very close in the baseline scenario, such that a change in assumptions expectedly changed the relations between the contributions of these two population groups. Late immigrants – other households are considerably larger than late immigrants – FSU households (3.43 persons compared to 2.59 persons); therefore, the contributions of late immigrants – other were higher when relevant revenues were attributed equally to every person – under scenarios 2 and 4 (because they had larger households, they were attributed a larger share of contributions), while the contributions of late immigrants – FSU were higher when relevant revenues were attributed equally to every household – under scenarios 1 and 3. The position of all other population groups in the contribution ladder remained firm under the alternative scenarios since the initial differences between the contribution of the population groups (under the baseline scenario 1) were quite considerable, such that a somewhat different attribution method could not alter the results. This finding provides additional support to the conclusions.

Government Expenditures Attribution Results

The results of the attribution of government expenditures to households, are broken down into two tables; the attribution of government allowances is detailed in Table 10, and the attribution of all other government expenditures is detailed in Table 11.

Table 10 details the annual NII allowances paid to households, by population group, and by allowance. In parentheses are the shares that each group received out of the total allowances granted. The "beneficiary share" is the share of households within each group that received the allowance.

Table 10 – Annual National Insurance Institute Allowances Paid to Households, by Group*, ₪, 2011

	Group							
	1	**2**	**3**	**4**	**5**	**6**	**National Average**	**Total Expenditure[1] (million ₪)**
Share of Households (Income Survey)	14.5%	2.9%	4.9%	16.2%	2.3%	59.2%	100%	
Allowances Paid Directly to Households								
Child	1,368	1,406	3,488	1,042	1,919	4,255	3,141	6,974
	(6.3)	(1.3)	(5.4)	(5.4)	(1.4)	(80.2)		
Beneficiary Share	31.0	23.2	44.1	16.9	32.5	56.6	44.3	
Old-Age and Survivors	16,438	17,621	11,169	23,319	15,912	5,090	10,599	23,531
	(22.5)	(4.9)	(5.1)	(35.6)	(3.5)	(28.4)		
Beneficiary Share	37.3	41.5	27.7	53.9	35.2	12.3	24.8	
Work Injury	701	1,149	976	1,600	3,257	1,751	1,554	3,450
	(6.5)	(2.2)	(3.1)	(16.7)	(4.9)	(66.7)		
Beneficiary Share	0.4	1.1	0.5	0.6	0.5	0.7	0.6	
Disabled	5,049	5,276	4,381	4,922	4,620	5,490	5,254	11,664
	(13.9)	(2.9)	(4.1)	(15.2)	(2.0)	(61.9)		
Beneficiary Share	9.9	10.1	7.2	10.0	8.2	9.6	9.6	
Unemployment	1,641	536	958	644	19	1,281	1,163	2,582
	(20.4)	(1.3)	(4.0)	(9.0)	(0.0)	(65.2)		
Beneficiary Share	3.1	1.6	1.7	1.2	0.4	2.4	2.2	
Income Support	1,525	903	1,632	600	491	1,256	1,179	2,617
	(18.7)	(2.2)	(6.7)	(8.2)	(1.0)	(63.1)		
Beneficiary Share	5.8	2.9	5.5	2.2	2.1	4.2	4.1	

Other	1,004	1,061	5,582	463	1,966	2,281	1,919	4,260
	(7.6)	(1.6)	(14.1)	(3.9)	(2.4)	(70.4)		
Beneficiary Share	1.6	1.6	5.2	0.6	1.7	2.0	1.9	
Allowances Paid Indirectly to Households Through Rendered Services								
Maternity	527	374	1,250	195	1,061	1,410	1,039	2,307
	(7.4)	(1.0)	(5.8)	(3.0)	(2.4)	(80.3)		
Beneficiary Share	6.2	4.4	14.7	2.3	12.5	16.6	12.2	
Nursing	2,707	3,201	2,331	4,406	2,754	880	1,898	4,213
	(20.7)	(4.9)	(6.0)	(37.6)	(3.4)	(27.5)		
Beneficiary Share	35.4	41.2	30.8	55.2	34.2	11.5	24.4	
Total	30,959	31,527	31,767	37,193	32,000	23,693	27,800	61,598
	(16.2)	(3.3)	(5.6)	(21.7)	(2.7)	(50.6)		
Beneficiary Share	75.0	74.0	77.5	79.7	73.4	74.4	75.5	

* All calculations are within group averages.
Source: own calculations – CBS 2011 Income Survey (2013a) and NII 2011 Annual Report (2012).

[1] Total expenditure includes allowances, administrative costs and other related costs.

Overall, the government , through the NII, allocated ₪61,598 million in allowances to households. The highest expenditures were on old-age and survivors, disability and child allowances, on which the government spent ₪23,531 million, ₪11,664 million and ₪6,974 million, respectively. Accordingly, population groups who received the highest shares of these allowances, were also the ones to receive the highest overall allowances.

Old-age and survivors allowances accounted for 38% of allocated allowances. Obviously, receipt corresponds with the age composition of each population group. As detailed in Table 3, the average age of the head of household in the early immigrants – other population group was the highest (65.2), and the average age of the head of household in the early immigrants – FSU population group was the second highest (59.7). Accordingly, these two population groups received the highest and second-highest average allowances, which were considerably higher than the overall average annual allowance, ₪23,319 and ₪17,621, respectively. The average age of the head of household in the late immigrants – FSU and the second generation – FSU population groups were also higher than average – 50.8 and 50.3, respectively. Accordingly, they also received high average annual allowances - ₪16,438 and ₪15,912. Conversely, late immigrants – other and natives had head of households who were the youngest on average – 41.8 and 42.0, respectively, thus, received allowances that were measurably lower than the average annual allowance - ₪11,169 and ₪5,090, respectively. The age composition of the native population group appears to have been especially young (as also reflected in the number of children under the age of 18), such that their average allowance was extremely low compared to other population groups; because of this and the fact that old-age and survivors allowances were responsible for a sizeable share of the allowances households received, the overall average allowance (considering all

allowances) that natives received was the lowest, while the overall average allowance that late immigrants – other received was the highest.

Beside the old-age and survivors allowance, nursing allowance receipts also correspond to the age composition of each population groups; allowances were attributed to households according to the number of persons over the age of 65 in each household. Persons over the age of 65 are also eligible for an old-age and survivors allowance, so that the two allowances were attributed to the same population. Therefore, the relation between the average annual allowances of the different population groups is similar to that of the old-age and survivors allowance; the older population groups - early immigrants – other and early immigrants – FSU, received the highest average annual allowances, ₪4,406 and ₪3,201, while the younger population groups – late immigrants – other and natives received the lowest average annual allowances - ₪2,331 and ₪880, respectively.

Disability allowances accounted for 19% of allocated allowances, but didn't have a great effect on the differences in the average overall allowance that each population group received. Disability allowance are not entirely dependent on the socio-demographic composition of each population groups, as old-age and survivors and child allowances are; in general, disability is fairly equally "distributed" amongst the population, regardless of nativity. Indeed, the differences in disability allowance receipt between the population groups are not substantial; mostly, each population group received a share of allowances that corresponds to its share in the number of households. The highest average annual allowance was received by natives (₪5,490) and the lowest average annual allowance was received by late immigrants – other (₪4,381); other population groups received average allowances that were in between these figures.

Child allowances accounted for 11.3% of allocated allowances. As with the old-age and survivors allowances, these depend on the age composition of each population group, specifically the number of children under the age of 18. As detailed in Table 3, natives have the highest number of children (1.47) and late immigrants – other have the second highest number of children (1.22). Accordingly, these received the highest and second highest child annual average allowances - ₪4,225 and ₪3,488, respectively. Other population groups, which had a lower number of children, received average annual allowances that range between ₪1,042 (early immigrants – other) and ₪1,919 (second generation – FSU). Although natives and late immigrants – other received average annual allowances that were considerably higher than the average annual allowances received by other population groups, because child allowances are much lower, on average, than old-age and survivors allowances, they could not offset the differences between population groups in overall allowances receipts stemming from difference in old-age and survivors allowances.

Beside child allowances, maternity allowance receipts also correspond to the age composition of each population groups; allowances were attributed to households according to the number of children under the age of one in each household. Population groups who tend to have more children, such as natives and late immigrants – other, are more likely to be eligible for both child allowances and maternity allowance, therefore, the relation between the average annual allowances of the different population groups is similar to that of the child allowances; natives and late immigrants - other, received the highest average annual allowances, ₪1,410

and ₪1,250, while the older population groups – early immigrants – other and early immigrants – FSU received the lowest average annual allowances - ₪195 and ₪374, respectively.

Unemployment and income support allowances accounted for 8% of allocated allowances; these are allocated to households according to their labor market status. Late immigrants – FSU fare worst, thus, received the highest average annual allowance - ₪3,166 together; late immigrants – other received the second highest average annual allowance - ₪2,590; native also received a high average annual allowance - ₪2,537. Other population groups received lower allowances.

Other allowances (work-injury and other allowances) accounted for 13% of allocated allowances. With respect to work-injury allowances, conceptually these should not be attributed in higher shares to one population group or the other; nonetheless, second generation - FSU households received average annual allowances that were unusually high without an apparent reason (₪3,257). With respect to other allowances, these mainly consist of maternity related allowances, thus, population groups who have more children – late immigrants – other and natives received high average annual allowances - ₪5,582 and ₪2,281, respectively. other population group received considerably lower average annual allowances.

Overall, age composition was the most influential factor in determining the overall average annual allowance that each population group received. Old-age and survivors, together with nursing allowances accounted for 45% of allocated allowances; these were attributed solely to the elderly, so benefited older population groups. The second most influential factor were the number of children that each population group had. Children, together with maternity allowances and other allowances (most of which were maternity related) accounted for 22% of allocated allowances; these were attributed solely to households with children, so benefited benefited younger population groups, and those that had a large number of children. Disability allowances also composited a large share (19%) of overall allowances, but were distributed quite equally between population groups, so did not influence the differences in overall average annual allowances between the population groups. Other allowances, such as labor market related allowances were also less significant in determining the differences in overall average annual allowances between the population groups.

In summary, late immigrants – other received the highest average annual allowance - ₪37,193. Other immigrant population groups, as well as second generation – FSU received similar average annual allowances that ranged between ₪30,959 for late immigrants - FSU and ₪32,000 for second generation – FSU; natives received average annual allowance that was considerably lower than these - ₪23,693, mainly because the average annual old-age and survivors allowance that they received was very low. Because most allowances are allocated in accordance with demographic characteristics (such as age and number of children), the relation between allowances receipts and earnings is weak.

The attribution of all other government expenditures is detailed in Table 11; it details the average annual benefits attributed to households, by population group, and by item. In parentheses are the shares of benefits received by each population group out of the total government expenditures on the item.

As detailed in each respective section, two different scenarios were employed for the attribution of several public goods and services (from national defense to communication affairs) and domestic and foreign loans. To recall, the baseline scenario attributed these benefits equally to every household; the alternative scenario attributed these benefits equally to every person.

The baseline scenario is detailed in the table below; the alternative scenarios are detailed in Table 3A in Appendix 3. Additionally, the results of alternative grouping of populations are detailed in Table 3B in Appendix 3.

Table 11 –Annual Household Benefits, by Group*, ₪, 2011

	Group						
	1	**2**	**3**	**4**	**5**	**6**	**National Average**
Share of Households (Income Survey)	14.5%	2.9%	4.9%	16.2%	2.3%	59.2%	100%
*Expenditures Allocated **Differently** to Households*							
Healthcare[1]	17,021	18,088	16,497	21,114	16,804	15,251	16,636
	(14.8)	(3.2)	(4.8)	(20.6)	(2.3)	(54.3)	
Primary and Secondary Education	5,072	5,584	11,612	4,036	5,636	14,466	10,813
	(6.8)	(1.5)	(5.2)	(6.0)	(1.2)	(79.2)	
Government Employees Pensions (*Baseline Scenario)*	4,916	4,746	5,317	4,900	4,681	5,424	5,223
	(13.6)	(2.7)	(4.9)	(15.2)	(2.1)	(61.5)	
Education n.e.c.	1,795	1,976	4,109	1,428	1,994	5,119	3,826
	(6.8)	(1.5)	(5.2)	(6.0)	(1.2)	(79.2)	
Academic Education[1]	2,610	2,384	2,336	2,002	4,373	4,082	3,404
	(11.1)	(2.0)	(3.3)	(9.5)	(3.0)	(71.0)	
Police	2,523	2,177	2,383	2,167	2,141	3,054	2,754
	(13.3)	(2.3)	(4.2)	(12.7)	(1.8)	(65.7)	
Pre-Primary Education	504	381	1,722	262	849	1,813	1,303
	(5.6)	(0.9)	(6.4)	(3.2)	(1.5)	(82.4)	
Disabled Holocaust Survivors	138	3,301	1,504	5,237	1,399	296	1,245
	(1.6)	(7.7)	(5.9)	(68.1)	(2.6)	(14.10	
Law Courts and Legal Affairs	1,073	1,061	1,119	1,008	1,004	1,275	1,182
	(13.1)	(2.6)	(4.6)	(13.8)	(2.0)	(63.8)	
Social Welfare Services - Other	1,141	1,297	1,706	1,173	452	1,170	1,179
	(14.0)	(3.2)	(7.0)	(16.1)	(0.9)	(58.7)	
Incarceration	756	742	784	738	727	1,113	965

	(11.4)	(2.2)	(3.9)	(12.4)	(1.7)	(68.3)	
Public Housing and Rent Assistance[1]	2,531	254	2,618	461	474	539	906
	(40.5)	(0.8)	(14.0)	(8.3)	(1.2)	(35.2)	
Social Welfare Services – Care for the Disabled	859	870	621	862	697	827	826
	(5.1)	(3.1)	(3.7)	(16.9)	(2.0)	(59.3)	
Labor Market Affairs	672	507	874	457	713	908	783
	(12.4)	(1.9)	(5.4)	(9.4)	(2.1)	(68.7)	
FSU Immigrants Specific Expenditures	4,944	0	0	0	0	0	716
	(100.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	
Transfers to Religious Educational Institutions	71	100	770	375	365	683	524
	(2.0)	(0.6)	(7.1)	(11.6)	(1.6)	(77.1)	
Senior Citizens	191	225	164	310	194	62	134
	(20.7)	(4.9)	(6.0)	(37.6)	(3.4)	(27.5)	
Public Transportation Subsidies for Youth	42	47	97	34	47	121	90
	(6.8)	(1.5)	(5.2)	(6.0)	(1.2)	(79.2)	
Adjustments	-10	-10	-11	-11	-10	-10	-10
	(14.2)	(2.8)	(5.1)	(16.6)	(2.2)	(59.1)	
*Expenditures Allocated **Equally** Amongst Households (Baseline Scenario)*							
National Defense							27,092
Transportation							4,664
Transfers to Local Authorities							1,817
Market Subsidies							1,574
Industry R&D, Infrastructure and Subsidies							1,177
Public Security n.e.c.							1,068
Government, Parliament, President's Office and Prime Minister's Office							986
Financial and Fiscal Affairs							958
Foreign Affairs							715
National Infrastructure (Gas, Oil, Water, Electricity)							538
Culture and Sports							486
Agriculture							377
Interior Affairs							369
Expenditures n.e.c							341
Development Costs n.e.c.							337
Tourism							258
Housing Infrastructure							184

Religious Services							182
Fire Protection							170
Science Infrastructure							75
Environmental Affairs							64
Communications Affairs							16
Other Expenditures (Baseline Scenario)							
Domestic and Foreign Loans							8,334
Total, including NII Allowances	129,585	127,034	137,769	135,524	126,318	131,662	132,024
(*Baseline Scenario*)	(14.2)	(2.8)	(5.1)	(16.6)	(2.2)	(59.1)	
Total, including NII Allowances	117,372	116,053	139,242	120,338	116,417	139,613	132,024
(*Alternative Scenario*)	(12.9)	(2.6)	(5.1)	(14.8)	(2.0)	(62.6)	

* All calculations are within group averages.
Source: own calculations – CBS 2011 Expenditure Survey (2013c), CBS 2011 Income Survey (2013a) and the Israel Government Revenues Administration 2011-2012 Annual Report (2013).

[1] The three items – healthcare, academic education and public housing and rent assistance – were estimated using the Expenditure Survey and the Labor Force Survey, as opposed to all other items, which were estimated using the Income Survey. Because the overall number of households, and the number of households from each population group varies slightly between the surveys (less than 2.0% difference), I slightly adjusted the number of households in the Expenditure Survey and the Labor Force Survey, so they would equal the number of households in the Income Survey; the attributed amounts were adjusted accordingly.

The average Israeli household received ₪132,024 in annual benefits (including NII allowances). Late immigrants – other received the highest benefits – ₪137,769. Early immigrants – other received the second-highest benefits - ₪ 135,524. Natives received ₪131,662 in benefits. Immigrants from the FSU, late and early received ₪129,585 and ₪127,084 in benefits, respectively. Second generation – FSU received the lowest benefits - ₪126,318. Because the entire population is eligible to use most government services, regardless of their income, the distribution of benefits between the population groups is much more equal than the distribution of contributions, as only a certain share of households share the burden of significant contributions. The difference in benefits between the population group that received the highest benefits and the population group that received the lowest benefits was ₪11,451 (8.3%), compared to the difference in contributions between the population group that contributed the most and the population group that contributed the least, which was ₪69,695 (45.8%). Accordingly, the variance of attributed contributions was more than four times the variance of attributed benefits.

Because benefits were distributed fairly equally, most population groups received benefits that were in line with their share in the number of households, without any major exceptions. However, there are differences in the distribution of specific benefit items; while some are distributed rather equally, others benefit certain population groups.

The two largest expenditures items were healthcare and education. Healthcare benefits were attributed to households in accordance with each households' age composition. Accordingly, older population groups

(such as early immigrants – both from the FSU and fro other countries) received higher than average healthcare benefits, while younger population groups (such as natives and late immigrants – others) received lower than average healthcare benefits. In contrast to healthcare expenditures, education expenditures (including academic education) benefited younger population groups, and those that have a large number of children; consequently, the attributed education benefits somewhat offset the differences in healthcare benefits between the population groups, since healthcare benefits favored older population groups, while education benefits favored younger population groups. Education benefits were attributed to households in accordance with the number of children residing in each household; the age composition also plays a role, since older households, even if having a large number of children, do not live with their children in most likelihood. The younger population groups, which were also the households that had the highest number of children, received higher education benefits; older population groups received lower benefits.

Police related benefits which includes the expenditures of the police, law courts and legal affairs and incarceration, were attributed fairly equally to households (according to data, immigrants were not more prone to commit crimes), with the exception of natives which were attributed higher than average benefits, mainly because Arabs are a part of the native population group, and they commit crimes in higher share than their share in the population.

Other benefits were less substantial in determining the overall differences in benefits between the population groups. The exceptions were public housing and rent assistance, which benefited late immigrants (from both the FSU and from other countries) considerably more than the other population groups; FSU immigrant specific expenditures which benefited only late immigrants – FSU households; and disabled holocaust survivors expenditures which benefited early immigrants (from both the FSU and from other countries) considerably more than the other population groups. With regard to the expenditures such as national defense, transportation and others, which were assumed to benefit the entire population equally (these account for a significant 39.2% of overall attributed government expenditures), under the baseline scenario, these were attributed equally to all households, thus these did not affect the differences in overall benefits between the population groups.

Under the alternative scenario, in which the expenditures that were assumed to benefit the entire population equally were attributed equally to all persons, as opposed to all households, the overall annual benefits that each population group received changed markedly. Population groups with smaller households (late and early immigrants from the FSU and early immigrants from other countries) were now attributed lower benefits, while population groups with larger households (natives and late immigrants – other) were now attributed higher benefits. Because the expenditures that were assumed to benefit the entire population equally were significant, the different attribution method led to measurably different results.

Under the alternative scenario the differences between the population groups were larger. The benefits received by late immigrants – other and native households increased to ₪139,242 and ₪139,613, respectively (up from ₪137,769 and ₪131,662, respectively); conversely, the benefits received by early immigrants – FSU, and second generation – FSU households declined to ₪116,053 and ₪116,417, respectively (from ₪127,034

and 126,318, respectively). Thus, the differences between the population groups grew – the highest benefits were ₪23,560 higher than the lowest benefit, compared with ₪11,451 under the baseline scenario. Not only did the average annual benefit for each population group change, but the positions of each of the population group within the benefits "ladder" changed; for example, the population group that received the second highest benefits by only a margin under the baseline scenario (early immigrant – other), received the third highest benefits under the alternative scenario, but far from the population group that received the second highest benefits. This means that the results depend on the assumption applied with regard to the attribution od the expenditures that are assumed to be attributed equally to the entire population. Nonetheless, when applying the alternative attribution method, the differences in benefits between the population groups were still tempered when compared to the differences in contributions.

Table 3B in Appendix 3 details the results of grouping together similar populations into more general categories. It can be concluded that late immigrants (FSU and other countries) received benefits that were similar to natives (both second generation – FSU and native), while early immigrants (both from the FSU and from other countries) received slightly higher benefits. Altogether, all immigrants received benefits that were slightly higher than the benefits received by natives (₪129,798 compared with ₪128,367, respectively). Taking into account nativity, immigrants from the FSU (late and early) received the lowest benefits (₪126,118), natives received higher benefits (₪128,367); immigrants from other countries (late and early) received the highest benefits (₪132,841).

In contrast, under the alternative scenario, all immigrants received benefits that were lower than the benefits received by natives (₪118,430 compared with ₪135,473, respectively). Taking into account nativity, immigrants from the FSU still received the lowest benefits (₪114,403), but natives and immigrants from other countries switched positions – immigrants from other countries received ₪121,776 in benefits, and natives received the highest benefits (₪135,438).

Net Fiscal Impact Results

The net fiscal impact of households is their attributed contributions minus their attributed benefits. Before the net fiscal impact is quantified, an adjustment had to be made. The government expenditures and revenues were extracted from two different sources, because each source provided exhaustive details on either expenditures, or revenues, not both. Because of this, there are several discrepancies in the figures, which government are prone to; total government expenditures are 1.7% higher than government revenues. To be able to quantify the net fiscal impact, government expenditures must equal government revenues. Otherwise, households are automatically attributed a negative fiscal impact from the start, although accounting discrepancies are to blame. Therefore, I scale down overall government expenditures accordingly so they would equal government revenues. This means that the attributed benefits to every household are scaled down proportionally by the same measure. Table 3C in Appendix 3 details the scaled down government expenditures attribution. After government expenditures are scaled down, the average net fiscal impact of all households is slightly off-zero, because it was calculated as the difference between contributions and benefits, each one of which were estimated using different surveys; most contributions were estimated using the Expenditure Survey, while most benefits were estimated using the Income Survey. The overall number of households in these surveys differs by about 5,000 households (approximately 0.2% of households); this means that even if total attributed government expenditures equals total attributed government revenues, because the overall number of households varies between the surveys, the average per household also varies between surveys. Subtracting the different averages results in a net fiscal impact that is slightly off-zero.

Table 12 details the net fiscal impact, by population group, under the baseline scenario (in which first, 75% of corporate income tax revenues are attributed to households in proportion to their capital income and the remaining 25% are attributed to households in proportion to their labor income; second, revenues which are attributed equally to the population, are attributed equally to every household, regardless of its number of persons), and under the three alternative scenarios, detailed in each respective section. In parenthesis are the total net impacts of each population group, in million ₪ (i.e., the average net impact per household multiplied by the number of households). Apart from the comparison of the six population groups, Table 4A in Appendix 4 details the net fiscal impact using alternative groupings.

Table 12 –Annual Net Fiscal Impact, by Group*, ₪, 2011

	Group					
	1	**2**	**3**	**4**	**5**	**6**
Baseline Scenario						
-- Corporate Tax Baseline Scenario, Equally to Households	-43,537 (-13,235)	11,795 (763)	-52,114 (-6,225)	-17,427 (-6,366)	28,762 (1,465)	18,336 (24,043)
Alternative Scenarios						
-- Corporate Tax Baseline Scenario, Equally to Persons	-34,928 (-10,618)	18,832 (1,218)	-53,290 (-6,366)	-7,102 (-2,594)	36,259 (1,847)	12,839 (16,834)
-- Corporate Tax Alternative Scenario, Equally to Households	-41,611 (-12,650)	12,150 (786)	-51,512 (-6,153)	-19,819 (-7,240)	28,093 (1,431)	18,510 (24,271)
-- Corporate Tax Alternative Scenario, Equally to Persons	-32,931 (-10,011)	19,267 (1,246)	-52,694 (-6,295)	-9,397 (-3,433)	35,637 (1,815)	12,963 (16,998)

* All calculations are within group averages.
Source: own calculations – CBS 2011 Expenditure Survey (2013c), CBS 2011 Income Survey (2013a) and the Israel Government Revenues Administration 2011-2012 Annual Report (2013).

Late immigrants from other countries and from the FSU had the most negative annual net fiscal impacts, -₪52,114 and -₪43,537, respectively. This means that they received ₪52,114 and ₪43,537 more in benefits than they contributed in taxes and fees. Early immigrants – other also had negative annual net fiscal impact of -₪17,427. Conversely, early immigrants – FSU had a positive annual net fiscal impact of ₪11,795 and so did both of the native population groups – natives and second generation – FSU, which had an annual net fiscal impact of ₪18,336 and ₪28,762, respectively. The difference between the two population groups with the most negative net fiscal impacts and the two population groups with the most positive annual net fiscal impacts were substantial, ranging between ₪61,873 and ₪80,876.

As detailed in the previous section, the government benefits were distributed quite equally, while attributed government contributions varied considerably between population groups. Thus, the annual net fiscal impacts were mainly driven by the contributions of each population group. The three population groups that had an above average annual contribution –early immigrants – FSU, second generation – FSU and natives, had positive annual net fiscal impacts; the three population groups that had below average annual contribution – late immigrants – FSU, late immigrants – other and early immigrants – other, had negative annual net fiscal impacts. Moreover, the differences between the annual net fiscal impact of the population groups correspond to the differences between the average annual contribution of the population groups.

Nevertheless, the differences in attributed government benefits accentuated the annual net fiscal impacts of some population groups. Late immigrants – other had the lowest contributions and the highest attributed benefits, resulting in the most negative annual net fiscal impact. On the other hand, second generation – FSU

households had the highest contributions and the lowest attributed benefits, resulting in the most positive annual net fiscal impact.

Joining similar population groups produces more general insights (detailed in Table 4A in Appendix 4). Using the general groupings, it can be concluded that late immigrants (FSU and other countries) had the lowest (negative) annual net fiscal impact, early immigrants (FSU and other countries) had higher annual net fiscal impact, but still negative, and natives (both second generation – FSU and native) had the highest (positive) annual net fiscal impact. All immigrants had negative annual fiscal impact (-₪29,219), while natives had positive annual net fiscal impact (₪18,728 which is ₪47,947 higher). Considering nativity, all FSU immigrants (late and early) had the lowest (negative) annual net fiscal impacts (-₪33,849), other immigrants (late and early) had a higher annual net fiscal impact that was still negative (-₪25,940.60) and as mentioned, natives had a positive annual net fiscal impact. These conclusions remained the same under all alternative scenarios, only the scales changed.

Under the alternative scenarios, detailed in Table 12, the signs of the annual net fiscal impacts of all population groups remained the same, and so did the relative relations between the annual net fiscal impacts of the population groups – the position of each population group, in relation to the all others, under the baseline scenario remained the same under all alternative scenarios. Only the scale of the annual net fiscal impact changes, albeit not considerably. The negative annual net fiscal impacts mostly decreased, but not enough as to become positive. They decreased because under the alternative scenarios, either the corporate income tax revenues were attributed more heavily in proportion to labor income, rather than capital income (the population groups with the negative annual net impacts had low incomes, so also owned less capital, thus were attributed higher contribution under the alternative scenarios); or that the relevant items that were assumed to benefit the entire population were attributed equally to persons, as opposed to households (the population groups with the negative annual net impacts had smaller households, so were attributed lower benefits under the alternative scenarios). For example, for late immigrants – FSU, the annual net fiscal impact decreased from -₪43,537 under the baseline scenario, to -₪32,931 under scenario 4; the annual net fiscal impact of early immigrants – other decreased from -₪17,427 to as -₪7,102 under scenario 2; however, the negative net fiscal impact of late immigrants – other, barely changed. For the opposite reasons, the positive annual net fiscal impacts. The fact that under all scenarios, the overall results remained the same, strengthens the conclusions.

The overall effect of each population group on the fiscal system is its annual net fiscal impact per household multiplied by the number of households. Late immigrations - FSU had the most negative overall annual fiscal impact; they received ₪13,235 million more in benefits than they contributed (4.5% of the government budget, excluding loans; 1.4% of GDP). Late immigrants – other and early immigrants – other had negative overall annual fiscal impact that amounted to -₪6,225 million and -₪6,366 million (2.1% of the government budget, excluding loans; 0.7% of GDP), respectively. Conversely, natives had a positive overall annual net fiscal impact of ₪24,043 million. Early immigrants - FSU and second generation – FSU also had positive overall annual net fiscal impacts, but because these population groups comprised a very small share in the population, their overall effect was insubstantial.

Age, Education, Length of Time Since Immigration and the Net Fiscal Impact of Immigrants

Three factors have a major effect on the net fiscal impact of households in general, and immigrant households in particular – age, education level, and the length of time since immigration. These factors influence the net fiscal impact of households mainly through their effect on earnings; as detailed in the "government revenues attribution" section, earnings are closely correlated with household contributions, and household contributions strongly affect the net fiscal impact of households (considerably more than household benefits).

The effect of age on the earnings of individuals depends on their current phase of life. Until individuals begin working, their net fiscal impact is expected to be negative due to the costs of education, both pre-tertiary and tertiary and other services received, while no major contribution are made during the period. After individuals begin working, their net fiscal impact mainly depends on their labor market performance – their extent of employment, their employment sector, their earnings, etc. During this period, individuals don't necessarily benefit from specific public services, but from services provided to the entire population rather equally (transportation, policing, etc.); the only highly costly services they benefit from that vary between households, are those related to the number of children that each household has (partners who choose to have a large number of children benefit from education, healthcare, and other child-related services more than the average). During the working phase, as the individuals age, their net fiscal is expected to increase because of the effect of age on earnings (experience, higher productivity, etc.). So, households with individuals who succeed in the labor market, and have fewer children are expected to have considerable better net fiscal impacts than households with individuals who fare badly in the labor market and have more children, as the latter contribute less and benefit from public services more. After individual retire, their net fiscal impact is expected to drop significantly; if their net fiscal impact was positive, it is likely to be negative after retirement, since the contributions decrease as the earnings decrease, and the benefits received increase (mainly healthcare, but also old-age allowances and other social programs for the elderly). This is more stark in a country like Israel, where a significant share of the elderly population lack pensions, and the poverty among the elderly is very high compared to other western countries.

Education affects the net fiscal impact of households since it improves the labor market prospects of individuals, thus raising their contributions, and also lowering the benefits they receive, such as their reliance on social welfare program aimed at unemployed or individuals employed in low-income jobs. Immigrants (especially those from non-western countries such as the FSU) who have studied abroad might not benefit from their education as much as natives, since their diplomas might be doubted, thought-less-of, or even not recognized at all by employers in their destination country. Moreover, even if the immigrants have academic education, after moving to their destination country, due to language deficiency, lack of networks, discrimination, as well as other factors, they might have to start off in a low paying job that might not utilize their academic education. This phenomenon has been studied in the literature; for example, the returns to education of Latin immigrants in the United States have been found to be lower the returns to education of

natives (Hall and Farkas 2008); Betts and Lofstrom (2000) similarly find that the returns to education for both pre-migration and post-migration education are lower amongst immigrants relatively to natives.

Length of time since immigration also affects the net fiscal impact of households. As the years pass since their arrival (considering immigrants still active in the labor market), immigrants gain work experience, improve their language proficiency, gain labor market related connections, gain confidence, and might also be less discriminated against, as they adapt local characteristics. All of the above improve their labor market prospects over time, thus their contributions, but additionally, as time passes by since their immigration, immigrants are no longer eligible to certain benefits aimed at new immigrants (mainly public housing but also some tax exemptions), thus lowering their attributed benefits.

In order to examine the effect of age and length of time since immigration, immigrants from all four immigrants population groups were first grouped into age categories according to the age of the head of household (assuming it represents the overall approximate age of other adult householders as well). Included in the first age category (17-25) are households in which the head of households is likely still enrolled in tertiary education, or otherwise, taking his / her first steps in the labor market (it must be remembered that most Israeli women and men serve two to three years, respectively in the army, right after high-school, such that they are free to begin their academic studies only at 21 or 22, or sometimes later). The last age category (71+) includes households in which the head of household has likely retired. The age categories in between (26-40, 41-55, 56-70) include households in which the head of household is likely employed; more than one category was examined for the working age groups, since as mentioned, earnings are likely to grow as age increases.

Within each age category immigrants were grouped into five categories pertaining to the years since their immigration (until the study year – 2011), i.e. the length of time that they have lived in Israel. The choice of categories was restricted by the available data. The baseline scenario was employed for all of these estimations. The alternative scenarios produce similar results, that are only different in scale.

The results are presented in Table 12. It details the average annual net fiscal impact of immigrants, depending on the age of the head of household ("householder"), and the length of time since his / her immigration to Israel. For each individual category, the average age and years of schooling of the head of household are detailed, as well as the number of households in the category, both in the survey, and in the population (the weighted number of households). In addition, the average annual net fiscal impact of each immigrant age group is detailed, regardless of the length of time since immigration. The data on natives is also detailed for each age group.

Several categories are vacant by definition; for example, head of households aged 17-25 could not have immigrated to Israel more than 25 years earlier, thus, the 33-40 and 41+ categories for these heads of households are vacant. In addition, categories in which the number of observations was lower than 30 were dropped[54].

[54] The CBS uses 30 as the minimum number of observations required for significance.

Table 13 –Annual Net Fiscal Impact of Immigrants, by Age of Head of Household and Years Since Immigration *, ₪, 2011

	Average Age of Householder	Average Years of Schooling	Number of Households (Survey)	Number of Households (Weighted)	Annual Net Fiscal Impact
Householders Ages 17-25					
Years Since Immigration					
-10	-	-	-	-	-
11-20	21.2	12.5	40	11,962	-33,021
21-32	-	-	-	-	-
33-40	-	-	-	-	-
41+	-	-	-	-	-
Average	21.9	12.7	87	26,200	-39,367
Natives	22.2	12.8	398	141,301	-38,542
Householders Ages 26-40					
Years Since Immigration					
-10	32.8	13.9	112	50,710	-54,917
11-20	33.6	13.9	159	65,054	-26,313
21-32	33.1	14.5	133	54,629	-5,502
33-40	37.2	14.6	33	13,449	49,660
41+	-	-	-	-	-
Average	33.5	14.2	439	184,308	-22,666
Natives	33.3	14.2	1,407	588,099	-4,480
Householders Ages 41-55					
Years Since Immigration					
-10	46.1	13.4	67	22,544	-50,658
11-20	47.7	13.6	168	60,022	-37,664
21-32	47.7	13.7	133	48,277	8,034
33-40	49.1	13.9	60	22,233	35,190
41+	50.6	14.0	112	37,938	62,491
Average	48.3	13.7	540	191,014	710
Natives	47.3	13.7	1,095	180,577	40,809
Householders Ages 56-70					
Years Since Immigration					
-10	62.1	11.5	42	12,002	-83,353
11-20	63.0	14.2	106	32,638	-78,120
21-32	61.9	14.7	133	41,592	-16,732

33-40	61.8	14.5	64	19,203	74,238
41+	63.0	12.4	407	131,709	9,487
Average	62.7	13.2	752	237,190	-6,693
Natives	61.3	13.0	584	182,007	80,875
Householders Ages 71+					
Years Since Immigration					
-10	-	-	-	-	-
11-20	77.5	13.2	96	33,406	-122,790
21-32	78.8	13.0	66	23,386	-112,663
33-40	79.2	12.8	42	14,858	-83,416
41+	79.3	9.1	360	135,331	-85,835
Average	78.9	10.6	582	214,712	-95,329
Natives	76.9	10.6	166	60,126	-29,725

* All calculations are within group averages.
Source: own calculations – CBS 2011 Expenditure Survey (2013c), CBS 2011 Income Survey (2013a) and the Israel Government Revenues Administration 2011-2012 Annual Report (2013).

The table reveals that the schooling years of new immigrants have declined since the 1980; in each subsequent decade, the average schooling years of new immigrants have declined, with recent immigrants (those that moved to Israel less than 10 years prior to 2011) having the least schooling years. The only exception are immigrants in households where the head of the household is over the age of 71. This partly explains the relatively worse net fiscal impact of the late immigrants population groups (groups 1 and 3), compared to the early immigrants population groups (groups 2 and 4). Also, immigrants from older age groups have on average less schooling years (with the exception of the 17-25 age group, which contains individuals who are not old enough to fully "implement" their educational attainment desires, thus should not be included in the comparison), but this is consistent with the rest of the population, as schooling years have consistently increased over time.

With respect to the age of immigrants, the results are consistent with prior expectations. The average annual net fiscal impact of the youngest age group (head of households aged 17-25) is large and negative, -₪39,367; individuals in this age group are likely still enrolled in the tertiary education system, or only starting work; thus, benefits outweigh contributions for this age group. For the next two age groups (26-40 and 41-55), the net fiscal increases (or becomes less negative) with the age of the head of household. This age groups include individuals who are likely already employed, and as mentioned earlier, as their age grows, so does their likely labor market prospects, thus their contributions. The average annual net fiscal impact of the 26-40 age group is still negative (-₪22,666) but less so, and the average annual net fiscal impact of the 41-55 age group increases considerably, such that it is already positive, albeit only slightly (₪710). The latter age group is in its prime of earnings and subsequently contributions. From there, net fiscal impact deteriorates, with the 56-70 age

group having a negative average annual net fiscal impact (-₪6,693). This is probably due to retirees whose earnings considerably drop after retirement, as well as the growing healthcare costs and welfare allowances (mainly old-age and survivors) for this population group which raises their benefits. The same holds true for the last age category (71+) for which the average annual net impact was extremely negative (-₪95,329); again, mainly due to low earnings and high healthcare and social welfare costs.

The same trends hold true for natives as well; however, the average annual net fiscal impact of natives is higher than the average annual net fiscal impact of immigrants for every age group. The largest differences between natives and immigrants are for the 41-55 age group (710 for immigrants, compared with 40,809 for natives) and for the 56-70 age group (-6,693 for immigrants, compared with 80,875 for natives). The contributions, not benefits, drive the differences; as detailed in the "government revenues attribution" section, natives earn considerably more than immigrants and own more capital so contribute more, a fact that is amplified by the regressive tax system. The differences are most evident beginning with the "intermediate working years" age groups (41-55 and 56-70) and less so for the "beginning working years" age group (25-40), perhaps because natives (due to language proficiency, connections, and lack of discrimination) advance more than immigrants during their working years, such that both population start with relatively low earnings, but the earnings of natives advance relatively more than the earnings of immigrants; i.e., the differences between the contributions of natives and immigrants widen with time, consistent with the data. With respect to the 71+ age group, in which most individuals are already retirees, the differences between natives and immigrants are still strong; the average annual net fiscal impact of natives is -₪29,725, compared with -95,329 for immigrants. This is explained by the fact that immigrants have garnered lower pensions, if at all, because they have worked in a foreign country before immigrating to Israel, or because they have worked in worse jobs in Israel. In addition, while most individuals in this age group don't earn labor income (except pensions), many still earn capital income from savings and the capital ownership of natives is considerably higher.

Because age greatly affects the net fiscal impact of households, the effect of the length of time since immigration was examined within each age group, so to keep age somewhat constant. As the "average age of householder" variable shows, the differences in the average age of the head of household for different "years since immigration" groups within each age group were mostly minor, suggesting that indeed age remained rather constant for the different "years since immigration" groups within each age group.

The length of time since immigration is positively correlated with the net fiscal impact of households; on average, the longer immigrants live in Israel, the higher their net fiscal impact. The only exception in the trend are immigrants in the 56-70 and 71+ age groups, and have moved to Israel more than 41 years prior to 2011. The results are partly explained by the higher schooling of immigrants that moved to Israel less recently; also, immigrants that immigrated to Israel less recently have somewhat lower unemployment rates relative to immigrants that immigrated to Israel recently. As detailed in the general section regarding the net fiscal impact of the different population groups, immigrants fare worse than natives, with only one immigrant population group having a positive net fiscal impact (early immigrant – FSU). The breakdown detailed in this section corresponds with the general results; only six specific groups of immigrants had a positive net fiscal impact –

immigrants whose head of household is aged 26-40 and have moved to Israel more than 33 years prior to 2011, immigrants whose head of household is aged 41-55 and have moved to Israel more than 21 years prior to 2011, and immigrants whose head of household is aged 56-70 and have moved to Israel more than 33 years prior to 2011. No group of recent immigrants have shown to have a positive net fiscal impact; immigrants, even younger, have to reside in their destination country for many years before they produce a positive net fiscal impact.

The data also enables inferring which immigrant households are "best" admitted, at least in terms of their net fiscal impact. Admitting households of immigrants over the age of 71 produces the worst fiscal impact; these households will probably produce a considerable negative net fiscal impact from the moment they enter the country until the end of their lives. The same holds true for the admittance of households of immigrants aged 56-70, aged 41-55 who are likely to produce a negative net fiscal impact for most of their lives, but less so during their initial years (regarding the 56-70 age group, for example, it can be inferred since immigrants in the 56-70 age group who have immigrated less than 10 years prior have a considerable net fiscal impact, and because as they age, they "move" to the 71+ age group, but the net fiscal impact of all immigrants in this age group is also considerably negative). It seems like only immigrants who were admitted at age 37 or younger produce a positive net fiscal impact, for at least some part of their lives. This can be inferred following the next exercise - the average annual net fiscal impact of immigrants whose head of households are aged 56-70 and have immigrated to Israel 33-40 years prior to 2011 is positive - ₪74,328; they have immigrated when they were maximum 37. During the first years after immigration, they likely produced negative net fiscal impacts (as apparent from the average annual net fiscal impact of immigrants ages 26-40 who have immigrated less than 20 years prior to 2011). However, after two decades, they were likely to have produced a positive net fiscal impact (as apparent from the average annual net fiscal impact of immigrants aged 56-70 and have immigrated to Israel 33-40 years prior to 2011). Applying the same exercise for the other groups for which the average annual net fiscal impact was positive, yields that, on average, only immigrants younger than 37 could have produced a positive net fiscal impact at some point of their lives. These inferences hold true in case the characteristics of future income will be similar to the characteristics of the immigrants examined in these study, i.e., current immigrants. Moreover, it only holds true for the "average" immigrant. Immigrants who have unusual characteristics, such as high schooling years, are likely to produce different results.

Table 14 details the average annual net fiscal impact of immigrants and natives, depending on the age of household ("householder"), and the his / her education level (schooling years). Low education refers to less than 11 schooling years (below high school graduation), intermediate-low education refers to 11-12 schooling years (likely high school graduation), intermediate-high education refers to 13-15 schooling years (likely bachelor's degree or a professional degree) and high education refers to more than 16 schooling years (likely graduate degree). For each individual category, the average age of the head of household is detailed, as well as the number of households in the category, both in the survey, and in the population (the weighted number of

households). As with the previous table, several categories are vacant by definition; in addition, categories in which the number of observations was lower than 30 were dropped[55]

Table 14 –Annual Net Fiscal Impact of Immigrants, by Age of Head of Household and Education Level *, ₪, 2011

		Average Age of Householder	Number of Households (Survey)	Number of Households (Weighted)	Annual Net Fiscal Impact
	Householders Ages 17-25				
	Education Level				
Immigrants	Low	-	-	-	-
	Intermediate-Low	21.3	41	12,460	-39,056
	Intermediate-High	-	-	-	-
	High	-	-	-	-
Natives	Low	-	-	-	-
	Intermediate-Low	22.0	198	73,024	-29,866
	Intermediate-High	-	-	-	-
	High	-	-	-	-
	Householders Ages 26-40				
	Education Level				
Immigrants	Low	35.0	55	19,849	-89,006
	Intermediate-Low	33.7	111	46,581	-22,258
	Intermediate-High	33.2	124	54,118	-30,633
	High	33.1	148	63,760	6,181
Natives	Low	34.4	116	62,268	-85,662
	Intermediate-Low	33.6	424	176,659	-35,623
	Intermediate-High	32.4	338	136,695	16,596
	High	33.2	528	212,387	30,987
	Householders Ages 41-55				
	Education Level				
Immigrants	Low	49.7	81	28,736	-55,406
	Intermediate-Low	47.9	138	50,783	-11,844
	Intermediate-High	48.0	187	65,783	7,031
	High	48.2	134	45,712	41,506
Native	Low	47.7	119	57,034	-85,966
	Intermediate-Low	47.2	391	139,151	7,248

[55] The CBS uses 30 as the minimum number of observations required for significance.

	Intermediate-High	47.5	234	82,945	52,392
	High	47.3	331	111,609	157,802
	Householders Ages 56-70				
	Education Level				
Immigrants	Low	63.9	157	54,436	-65,496
	Intermediate-Low	62.6	177	57,467	-20,076
	Intermediate-High	62.1	195	57,117	-5,862
	High	62.2	223	68,170	49,616
Natives	Low	62.3	147	45,095	-55,798
	Intermediate-Low	60.7	168	49,178	15,378
	Intermediate-High	61.2	106	32,334	52,843
	High	61.2	173	55,400	268,478
	Householders Ages 71+				
	Education Level				
Immigrants	Low	79.6	239	96,008	-93,575
	Intermediate-Low	79.1	104	39,997	-96,810
	Intermediate-High	78.4	123	42,209	-105,098
	High	77.2	116	36,498	-87,386
Natives	Low	77.2	60	23,590	-108,253
	Intermediate-Low	77.2	46	16,431	39,265
	Intermediate-High	-	-	-	-
	High	76.5	38	12,682	53,070

* All calculations are within group averages.
Source: own calculations – CBS 2011 Expenditure Survey (2013c), CBS 2011 Income Survey (2013a) and the Israel Government Revenues Administration 2011-2012 Annual Report (2013).

As expected, regardless of the age of individuals, the higher the education, the higher the net fiscal impact. Natives with a high, or intermediate-high level of education produce a considerable positive net fiscal impact, after they begin working, regardless of the age of the head of household. After they begin working, immigrants with a high, but not intermediate-high, level of education also produce a positive net fiscal impact, regardless of the age of the head of household (except for after they retire). Conversely, natives as well as immigrants, of all ages, with low level of education produce a considerable negative net fiscal impact, even during the prime of their working years; they just don't earn enough to offset the cost of benefits they receive. Natives with intermediate-low level of education produce negative net fiscal impact for heads of household up till the 26-40 age group, with older heads of household producing positive net fiscal impact, even after retirement. On the other hand, Immigrants with intermediate-low levels of education produce negative fiscal impact, regardless of the age of the head of household.

For most age groups and levels of education, when holding these the two constant, natives fare better than immigrants in terms of net fiscal impact. The data also reveals that natives enjoy higher returns to education than immigrants, the reasons for which were discussed above; for most age groups, the rise in the net fiscal impact due to an "upgrade" in education level are lower for immigrants than for natives. Another interesting conclusion that partly stems from this, is that generally, the differences in net fiscal impact between natives and immigrants are larger, the higher the education level. For example, within the 56-70 age group, the average annual net fiscal impact of natives with a low level of education is ₪9,698 higher (less negative) than the average annual net fiscal impact of immigrants with a low level of education. Considering the next level of education (intermediate-low), the difference rises to ₪35,454; subsequently (for intermediate-high level of education), the difference rises to ₪58,705; lastly, the average annual net fiscal impact of natives with a high level of education is ₪218,862 higher than the average annual net fiscal impact of immigrants with a high level of education. This results hold true for the other age groups as well, with minor exceptions. Immigrants, as well as natives, with a low level of education are mostly employed in similar low paying jobs, which result in a mostly similar net fiscal impacts. With higher levels of education, because immigrants enjoy a lower rate of return to education, the "premium" they receive is smaller with each "upgrade" in education than the "premium" enjoyed by natives, which increases the difference with each "upgrade" in education level. While language proficiency, connections, and lack of discrimination are less consequential for low paying jobs, they are measurably more consequential for higher paying jobs, which means that immigrants will suffer more with higher paying (higher education) jobs. This means that differences will be more evident for higher paying jobs which are mostly occupied by individuals with a higher level of education.

Another data observation is that the largest rise in net fiscal impact happens for individuals who "upgrade" from below high-school level of education (low education) to high school level of education (intermediate-low), as well as for individuals who "upgrade from a bachelor's degree level of education (intermediate-high) to a graduate level of education (high education). "Upgrading" from a high-school level of education (intermediate-low) to a bachelor's degree level of education (intermediate-high) is less beneficial, in terms of net fiscal impact.

Discussions and Conclusions

The fiscal impact of the immigration to Israel has largely been overlooked by researchers, policy makers and the Israeli public, despite its scale. This study aims at filling this gap, as well as improving on the prevalent methodology with the intention of producing more accurate estimations of the fiscal impact of immigrants. Using data from household surveys, I estimate the contributions that each household makes in taxes and fees, as well as the benefits that each household receives in public services and allowances. Subtracting the benefits from the contributions yields the net fiscal impact of each household. Grouping households into categories that pertain to the nativity of the head of household, enables estimation of the net fiscal impact of different immigrant population groups, as well as natives.

I find that immigrants impose a considerably negative fiscal impact; immigrant households received ₪29,219 more in benefits and allowances than they contributed in taxes and fees; the net fiscal impact of all native households was ₪18,728. Immigrants from the FSU fared the worst; their net fiscal impact was -₪33,849, while the net fiscal impact of other immigrants was slightly better -₪25,941. Recent immigrants (those that immigrated after 1990) fared better than early immigrants (those that immigrated before 1990). I also find that second generation households had the highest positive fiscal impact ₪28,76, markedly higher than all other natives.

The figure for immigrant households, which translates into -$8,166, is in the low range of comparable figures reported in the literature[56]; for example, Clune (1998) reported a net fiscal impact of -$7,142 (in 2011 dollars); the OECD (2013a) reported a net fiscal impact of -$8,239 and -$8,324 for Germany and Poland, respectively (in 2011 dollars); the net fiscal impact of immigrant households in most other surveyed countries was positive, with immigrant households in only five additional countries imposing a negative net fiscal impact, albeit considerably more moderate than Germany's or Poland's. Nonetheless, the OECD study did report a higher net fiscal impact of immigrant households in absolute values for several countries (seven out of 32), that reach as high as $21,276 (in 2011 dollars). However, the overall net fiscal impact of immigrants in these countries (reported as the overall net fiscal impact of immigrants as a share of GDP) was not high as their overall net fiscal impact in Israel, as discussed below.

The highly negative net fiscal impact of immigrant households in Israel, which is high by itself, but also when compared to other countries, might stem from Israel's unrestrictive immigration policy. As discussed in the introduction, Israel admits all Jewish immigrants, regardless of their nativity, age, skills or other characteristics. In contrast, most other Western countries impose different restrictions on immigration, whether it be quotas, or age, skill, or employment stipulations (Focus Migration 2014). Israel's unrestrictive immigration policy might have led to the immigration of populations that otherwise would have not been able to immigrate to other Western countries, most likely, immigrants with dimmer labor market prospects. In other words, the profile of immigrants in Israel might be "worse" than the profile of immigrants in countries that impose

[56] When compared to studies in which the net fiscal impact is comparable. i.e. the net fiscal impact was estimated at the household level, and for a single year.

restrictions on immigration. Consequently, the net fiscal impact of immigrants in Israel might be worse. Reviewing the demographic and socio-economic profile of immigrants to other countries, does not support the claim. For example, the educational attainment of immigrants to Israeli is higher (sometimes considerably) than the educational attainment of immigrants to the United States or the UK as reported by Clune (1998) and by Dustmann and Frattini (2013), respectively. Nonetheless, it appears that the age of immigrants to Israel, which substantially affects their net fiscal impact of immigrants, is higher than in other countries

The finding that the net fiscal impact of immigrant households in Israel is comparably high (in negative terms) interacts with two other factors to result in a measurable impact in terms of GDP. First, Israeli has the third highest share of foreign-born out of all OECD countries (OECD 2014b); its share of foreign born is more than 50% higher than the share of foreign born in the UK or the United States, the countries that most studies focused on. Hence, even if the fiscal impact of an immigrant household in Israel were equal to that of the UK or United States, the overall impact of immigrants would be considerably larger in Israel. Second, Israel is poorer than most other OECD countries; i.e., its GDP per capita is relatively low, certainly when compared to the United States, UK, Canada or other countries in which studies on the subject were conducted.

The large net fiscal impact, together with the share of immigrant households and the size of the economy, expectedly result in a substantial impact of immigrant households as share of the GDP. I find that the net fiscal impact of all immigrants amounts to approximately 2.9% of GDP; considerably higher than the figures reported in the literature. The comprehensive study by the OECD (2013a) concluded that the net fiscal impact of immigrants, whether negative or positive, rarely exceeded 0.5%. It exceeded 1% of GDP in only three countries, and was approximately 2% of GDP in only two countries out of 32 (Switzerland and Luxembourg). Clune (1998) reports an estimated negative fiscal impact of 0.2%. Lee and Miller (1998) report an estimated positive fiscal impact of 0.4%. Other studies also report figures that range between +1% and -1% (Rowthorn 2008). While other studies often agree that the net fiscal impact of immigrants is rather small, the results for Israel prove otherwise. This strongly reinforces the need of incorporating these findings into the public and professional discussion, in Israel and in other affected countries.

When considering the benefits and allowances that households receive, I find that these are fairly equally distributed between population groups, with a slightly higher than average receipts amongst population groups that have a large number of children (late immigrants – other and natives) and "older" population groups (early immigrant – other). The two largest government expenditures are healthcare and education (not including expenditures that are attributed equally to households); healthcare costs are skewed towards the elderly and the very young (children under 4); education costs are skewed towards children and students. In addition, approximately 60% of government allowances are granted to the elderly or to children. Thus, old-age and number of children have considerable bearing on the benefits and allowances that each population groups receives.

When considering the contributions of households, the variation between population groups is much higher. Annual contributions vary between ₪82,413 and ₪82,998 for late immigrant households (late immigrants – other and late immigrants – FSU, respectively), and ₪152,108 and ₪146,900 for native

households (second generation and natives, respectively). The differences in contributions correspond to the differences in earnings, although the differences in contributions are starker. Due to the regressive nature of direct taxation, the differences in direct tax contributions are more pronounced than the differences in indirect tax contributions. The taxation of capital income, disproportionally owned by wealthier households, who are more likely to be natives or second generation, also plays a role in the differences in direct taxation contributions.

Because the benefits and allowances that each population group received did no differ much between population groups, while the contributions of each population group did, it is the latter that drove the differences in net fiscal impact between the population groups. Hence, the net fiscal impact of each population groups lies on its contributions, and these depend on its earnings. It is not surprising then, that the three factors that were identified as having a significant bearing on the net fiscal impact of each population group, in line with other studies, are also ones that affect earnings – age, education level and length of time since immigration.

Education was found to be positively correlated with net fiscal impact. Working age immigrant households in which the head of household had a high level of education (mostly graduate degrees), had positive fiscal impacts. Lower levels of education mostly entailed negative fiscal impact; even intermediate-high education level (mostly bachelor's degree) was mostly not enough to produce a positive net fiscal impact. Nonetheless, each "upgrade" in the education level of the head of household increased its net fiscal impact. The "upgrade" for natives was much higher than the "upgrade" for immigrants; i.e., returns to education for immigrants were lower. The differences in net fiscal impact between natives and immigrants with a low level of education were fairly small. Because of lower returns to education for immigrants, each subsequent "upgrade" in education level increased the differences, such that the largest differences in net fiscal impact between natives and immigrants were found for heads of households with a high level of education.

The finding that even immigrant households with a fairly high level education (bachelor's degree can certainly be considered as such) do not produce a positive net fiscal impact is baffling; native households with a similar education level, or even a lower education level, produce mostly positive fiscal impacts (obviously, when controlling for age). This finding suggests that the integration of immigrants into the labor market was not as successful as perceived. It could imply to several deep rooted problems. First and foremost, the likelihood that immigrants were not correctly "matched" into jobs that fit their qualifications, such that immigrants with a high level of education were employed in low-paying jobs, which projected on their contributions. Other factors probably play a role as well; these include the discrimination of immigrants; their lack of language proficiency which prevented them from appropriate employment, or from advancement; their lack of networks; as well as other possible factors. These should be remedied by government actions.

Length of time since immigration was also found to be positively correlated with net fiscal impact; the longer the time since immigration, the higher the net fiscal impact. Regardless of the age of the head of households, on average, immigrants that have resided in the country for less than 20 years, all have a negative fiscal impact. This means that at least 20 years have to pass before an average immigrant has a positive net fiscal impact, and even then, it is likely for certain immigrants only (those with a high level of education). With

appropriate policies, the government can possibly "speed-up" the integration of immigrants, thus lowering the timespan between their arrival and the time in which they possibly produce a positive fiscal impact.

With respect to age, expectedly, "young" households (17-25) were found to impose a negative fiscal impact, and so did "old" households" (71+) since they receive high benefits (education for the young, healthcare and allowances for the old), but more importantly, because their earnings, and subsequently their contributions are extremely low. It was found that admitting old immigrants entails a considerable negative fiscal impact, which could amount to billions in differences between contributions and benefits. This is certainly true for elderly persons who immigrate on their own, and less so for elderly persons who immigrate as part of their family, since other young persons in their family could offset their own measurable negative fiscal impact. Not only are the net fiscal impact of elderly immigrants high on their own, but also when compared to natives; the largest differences between the net fiscal impact of natives and the net fiscal impact of immigrants were found in the older age groups (71+ and 56-70). This stems from immigrants' lack of pensions, since part of their employment was in other, mostly poorer, countries; immigrants' worse labor market outcomes (lower wages, etc.); and consequently, their lower capital ownership. All of these interact to result in extremely bad fiscal outcomes for elderly immigrants. Unfortunately, for immigrants at this phase of their lives, the government doesn't have a lot of options to rectify their fiscal implications, since most of these immigrants are already retired; it could possibly lower their old-age related allowances, but these are already low by international standards. This is in contrast with the policies that the government can apply to younger, working-age immigrants, as described above, so they do not end up burdening the fiscal system as much as current elderly immigrants do.

Beside the results detailed above, which were derived under a baseline scenario, three additional scenarios were examined with respect to estimation of the taxes and fees contributions of households, and an additional scenario was examined with respect to the estimation of the benefits and allowances that households received. Under all alternative scenarios, the results remained the same; i.e., the net fiscal impact of all population groups remained in the same position relatively to other population groups; moreover, the sign of the contribution of each population group remained the same; only the scale of the net fiscal impact of each group changed, albeit not considerably. This provides support for the findings.

An additional important result undermines the findings of previous studies. As mentioned previously, other studies attribute consumption taxes (value added tax, excise taxes, etc.), which constitute a considerable share of tax revenues, according to certain assumptions that do not account for the different consumption patterns of natives and immigrants. For example, tobacco tax revenues are attributed according to the number of adults in each household; fuel tax revenues are attributed according to the number of cars in each household (Clune 1998); all consumption tax revenues are attributed according to income (Dustmann et al. 2010 and Dustmann and Frattini 2013); all of these, regardless of nativity. I find that these assumptions don't hold ground. For example, the different excise taxes contributions vary considerably between population groups; also, the value added tax contributions, the single largest tax item, do not necessarily correspond with earnings, since different population groups have different tastes and preferences over consumption (for example, natives,

whose income is only ranked third, have the highest value added taxes contributions). Other studies should be reexamined in light of these findings.

This study makes several contributions. First, it is the first study to examine the fiscal impact of immigrants in Israel; as such, the results are of interest to policy makers in Israel. As a country with a large immigrant population that is expected to grow in the future, it is important to gauge their impact on the fiscal system, as well as the factors that influence their impact. Results imply a significant negative fiscal impact of immigrants, much higher than in other countries with immigrant populations. This fiscal implications of immigration should be well known to the public, as well as to policy makers, as it should be an integral part of any discussion on immigration. As mentioned, the study points to the effect of three factors on the net fiscal impact of immigrants. This information can be utilized in policy; the government can encourage the immigration of highly educated, young immigrants, at the expense of low educated, older immigrants who should be discouraged from immigrating to Israel; with respect to immigrants who have already immigrated to Israel, the government can tackle the factors that likely engender their negative fiscal impact – the government should invest in improving the education of immigrants, specifically, raising the education of immigrants with low education, or those with intermediate-high education could prove most beneficial, in fiscal terms, since these two "upgrades" in education level produce the largest increases in net fiscal impact. In addition, the government should invest funds in promoting the integration of immigrants. The current "average" immigrant produces a positive fiscal impact at least 20 years following his / her immigration, and even this, only with respect to immigrant of a certain age and education level. The reasons might be lack of language proficiency, lack of connections, discrimination, being "matched" to unfitting jobs, as well as other reasons. The government could actively tackle these hindrances.

Second, this study might be the most comprehensive in examining the fiscal impact of immigrants. Unlike most other studies, all government revenues and expenditures items were attributed to households. Each items was attributed in a rigorous substantiated manner that ultimately provide more accurate results. Other studies base a considerable share of their attributions on unsubstantiated assumptions, which are reasonable at best, and illogical, at worst. For example, Clune (1998) throughout his study makes an assumption that 35% of revenues from several major tax items (such as value added tax) were contributed by businesses, without substantiating this claim. Also, the fact that the same figure is applied to tax items that are inherently different in nature suggest that the assumption is wrong. Other examples of assumptions made in the literature are that immigrants consume the same as natives with the same income level, or that immigrants own capital as much as natives (Dustmann et al. 2010 and Dustmann and Frattini 2013); all reported without substantiation. This strongly undermines any findings. I mostly refrain from using these assumptions. Most importantly are the attributions of consumption taxes (value added tax, excise taxes, etc.), which comprise a significant share of government revenues; while other studies attributed these revenues to households based on various assumptions that do not take into account actual or estimated consumption, I, for the first time, attribute these revenues to households based on each household's estimated expenditure on the relevant item, as appears in the Expenditure study. Moreover, in the attribution of several revenues and expenditure items, novel techniques are developed

that likely improve the accuracy of the attribution. These modifications to the methodology, should be applied in other studies.

Third, this study joins Clune (1998) as being the only studies that examined the fiscal impact of second generation households. Most studies refrain from it due to lack of data. Similarly to Clune (1998) I find that second generation households fare better, but unlike Clune, I find that they fare so much better, such that their net fiscal impact is positive, and better even than natives' net fiscal impact; Clune on the hand, finds that although they fare better, their net fiscal impact is still negative, and lower than natives' net fiscal impact. These findings, in conjunction with the considerable negative net fiscal impact of first generation immigrants are important since the second generation might offset the negative fiscal impact of the their antecedent, thus providing a slightly "rosier" picture of immigration.

Several caveats should be mentioned. First, the results were estimated for the current pool of immigrants, who are in Israel as a result of past immigration policies. As such, the results do not necessarily project on the fiscal impact of future immigrants; only in case their profile will be similar to the profile of current immigrants, will the results be relevant. Additionally, the study does not take into consideration the fiscal impact of the descendants of current immigrants, nor does it account for any other economic implications due to current immigrants. The study only provides a "snapshot" of the fiscal impact of a current "average" immigrant.

Second, one of the advantages of the study is that I attribute all government expenditures and revenues to households, including tax revenues that are not directly borne by households (such as corporate income tax); but this also be a disadvantage, since the attribution of these tax revenues to households requires strong assumptions with regard to which households bear the tax payments, since there isn't a clear attribution criteria. I try to tackle this by examining different attribution scenarios; these do not change the results measurably, which strengthens the findings.

Third, as detailed in the "capital markets and dividends deductions" section, a gross underreporting of income in household surveys has been reported in the literature; this is true for labor income, but more so with respect to capital income. In both cases, underreporting is more evident at the top income deciles, which are mainly occupied by native and second generation households. The attribution of several significant tax items relied on the labor and capital income of household, as reported in the surveys. The underreporting of labor and capital income by mainly native and second generation households means that the contributions that were estimated for these population groups underestimate their actual contributions; conversely, the contributions that were calculated for the immigrant population groups overestimate their actual contributions. Consequently, the net fiscal impact of native and second generation households is likely higher than reported, and the net fiscal impact of immigrant households is even lower than reported. Accordingly, the differences between the net fiscal impact of immigrants and natives are probably even larger.

Lastly, this study dealt solely with the allocation of revenues and expenditure of the federal government. The taxes and fees that households pay to local government and the services they receive from local governments are a small share of the total taxes and fees that households pay and the total services that they

receive, so the study did concentrate the cardinal part. In 2011, the income of the local government that stemmed from municipal taxes levied on its inhabitants was ₪19,298 million; an additional ₪10,438 million were collected from different fees, such as real estate development fees and education fees (CBS 2013h). This amount constitutes a mere 11.4% of the federal government tax and fees revenues. The local government expenditures in the same year were 55,540 (CBS 2013h); this amount constitutes 13.9% of government expenditure. Beside their small share, considering the expenditure and revenues of the local government would considerably complicate manners, in a way that would take away from the results instead of adding to them. Attributing revenues and expenditures to households at the local level would require numerous assumptions due to the lack of relevant data. Adding numerous unsubstantiated assumptions would greatly weaken the fiscal effect estimations. Moreover, at the local level, there is direct relationship between taxes paid by households and the services given to them by the local government that is much stronger than the relationship at the federal level. A household that pays its municipal taxes will receive corresponding services, that are financed by levied taxes – garbage collection, roads construction, public parks, etc.; i.e. paying local government taxes, entitles the households to services that are similar in extent to the taxes paid. With respect to our analysis, this would increase the household's tax contribution, but also the extent of the services it received, by a similar amount; hence, it wouldn't significantly alter the net fiscal effect of the households. In contrast, because of the redistributive character of the federal tax system, a household that pays the taxes such as income tax and value added tax will not necessarily receive services that correspond to the amount of taxes that he paid.

Also left out were several fees that households incur; the two main ones are public television and radio tolls which are paid by owners of television sets, and fees paid directly to healthcare maintenance organization for services rendered (for example, patients pay a small quarterly fee when visiting a specialist doctor). Apart from their small share of taxes and fees paid by households, thus, their negligible importance, the fees are paid in return for a defined service. In the context of this study, it means that the contribution of the paying household will increase by the amount paid, and the benefits received by the household, will increase by the same amount (because it received a corresponding service), such that the net effect of the fee will be null.

Future research on the fiscal impact of immigrants in Israel should extend the undertakings of this study. Additional methods should be developed so less assumptions have to be made when attributing contributions or benefits to households, especially with regard to taxes that are not borne on households directly. Also, dynamic elements could be incorporated into the analysis. As mentioned, static analyses don't account for the future fiscal impacts of immigrants, thus, are not forward-looking, which is important for current policy decisions. Initially, the future demographic and socio-economic profile of the population would have to be predicted; then, utilizing the data from this study on the overall net fiscal impact of households according to age, education, and other characteristics, the future fiscal impact under each possible future demographic and socio-economic profile of the population, could be estimated. Considering the finding that second generation households had the highest positive fiscal impact, out of all population groups, incorporating the descendants of immigrants into their fiscal impact calculations could result in immigrants faring better compared to the findings of this study. Another beneficial undertaking would be to conduct the same study for other years; specifically,

the year 2000 would be of interest, since by then, most immigrants have already immigrated to Israel. It would be interesting to examine the net fiscal impact of an "average" immigrant right after the large wave of immigrants, and compare it to its net fiscal impact 10 years later, as detailed in this study. Moreover, conducting this study for additional years avoids part of the problem with examining the net fiscal impact of immigrants at a certain stage of the business cycle, since the results might differ for other stages on the business cycle.

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Appendix 1 – Additional Tables

Table 1A – Other Government Revenues (million ₪), 2011

	Government Revenues	Share of Other Government Revenues
Domestic and Foreign Loans	105,985	80.2
American Aid (Grants)	8,227	6.2
Repayment of Government Investments and Loans	5,911	4.5
Income from the Israeli Lands Authority	4,205	3.2
Receipts from the Sale of Government Owned Companies/Stocks	2,556	1.9
Interest[1]	2,442	1.9
Miscellaneous revenues[2]	1,599	1.2
Royalties[3]	1,130	0.9
Allocations for Pensions and Severance Pay	14	0.0
Total	132,069	100.0

Source: Accountant General (2011).

[1] Different interest receipts, such as interest on American guarantees, interest on Bank of Israel deposits and interest on mortgages.
[2] Revenues from various services which are unspecified, royalties from telecommunications companies, fees for using governmental assets and other revenues.
[3] Royalties from business enterprises (Governmental Advertising Agency, Government Print Agency, government hospitals, the Israeli Lands Authority and the ports of Haifa and Jaffa), royalties from natural resources and royalties and dividends from government owned companies.

Table 1B – Individuals Tax Brackets , 2011

Income (₪)	Marginal Tax Rate (%)
Up to 5,070	10
5,071 – 8,660	14
8,661 – 14,070	23
14,071 – 21,240	30
21,241 – 40,230	33
Above 40,230	45

Source: Israel Government Revenues Administration (2013).

Table 1C - Customs Duties Revenues, by Goods Category (million ₪), 2011

Goods Category	Imports[1]	Customs Duties Revenues	Share of Customs Revenues (%)
Consumer Goods	40,052	1,529	52.4
Food, Beverage and Tobacco	6,092	190	6.5
Clothing and Footwear	6,023	581	19.9
Furniture and Household Equipment	9,080	362	12.4
Medicines	2,796	3	0.1
Articles for Recreation and Hobbies	6,883	70	2.4
Miscellaneous	3,324	110	3.8
Medical Equipment	295	8	0.3
Transport Vehicles	4,787	190	6.5
Jewelry, Watches and Precious Stones	772	15	0.5
Production Inputs and Investment Goods[2]	223,703	1,391	47.6
Unspecified Goods	227	0	0
Total	263,982	2,920	100

Source: CBS (2013g) and the Israel Government Revenues Administration (2013)

[1] Customs duties are not levied on all imports, so the customs duties revenues stem from only part of the imports.
[2] Production inputs categories are not detailed. These are available at Central Bureau of Statistics (2013g).

Table 1D – FSU Immigrants Specific Government Expenditures (million ₪), 2011

	Expenditures
Ministry of Immigrant Absorption	1,341.7
Immigration Promotion Projects	151.6
Nativ[1]	65.2
Conversion to Judaism[2]	31.9
Total	1,590.4

Source: own calculations – Accountant General budget Implementation by Ordinances Report (2011).

[1] A body that works amongst Jews in the FSU mainly in education related causes.
[2] In 2004, 27.6% of immigrants from the FSU were not Jews (CBS 2006); they are the main beneficiaries of the ordinance.

Table 1E – Average Annual Healthcare Cost, Per Person, by Age Group, (₪) , 2011

Age Group	Original Cost	Inflated Cost
0 - 1	6,176	8,400
1 - 4	3,194	4,344
5 - 14	1,502	2,043
15 - 24	1,505	2,047
25 - 34	2,160	2,938
35 - 44	2,555	3,475
45 - 54	4,010	5,454
55 - 64	6,535	8,889
65 - 74	10,725	14,588
75 - 84	13,864	19,040[2]
85 +	14,153	
Average[1]	3,737	-

Source: National Insurance Institute 2011 Annual Report (2012).

[1] Per Standardized person.

[2] The average for the 75-84 group and the 85+, weighted by size of each group.

Appendix 2 – Governmental Contributions Attribution - Additional Tables

Table 2A details the results of the following alternative government revenues attribution scenarios:

- Corporate income tax – the alternative scenario attributes 50% of corporate income tax revenues to households in proportion to their capital income and 50% of corporate income tax revenues to households in proportion to their labor income.
- Other revenues – the alternative scenario attributes "other" government revenues to households in proportion to the its number of persons.
- Unattributed taxes and fees – the two corporate income tax scenarios yield different revenues attributed to foreigners, thus yielding two scenarios with respect to the attribution of these revenues. In addition, for each of these scenarios, the revenues are attributed either equally to all households, or equally to all persons (i.e. equally to all households in proportion to its number of persons). Hence, there are a total of four scenarios; the baseline scenario detailed in Table 8, while the alternative three scenarios are detailed below.
- Total taxes and fees contribution – the four scenarios of attributing the unattributed taxes and fees lead to four scenarios with respect to the total contribution of each households; the baseline scenario detailed in Table 8, while the alternative three scenarios are detailed below.

Table 2B details the revenues attribution results for all scenarios under different population groupings.

Table 2A –Annual Government Taxes and Fees Contributions – Alternative Scenarios, by Group*, ₪, 2011

	Group						
	1	**2**	**3**	**4**	**5**	**6**	**National Average**
Share of Households (Expenditure Survey)	13.7%	2.9%	5.4%	16.5%	2.3%	59.2%	100%
Corporate Income Tax	5,832	11,757	6,100	12,212	13,668	13,113	11,560
(Alternative Scenario)	(6.9)	(3.0)	(2.8)	(17.4)	(2.7)	(67.1)	
Other Revenues	9,634	9,390	10,900	8,329	9,723	13,505	11,773
(Equally to Persons)	(11.2)	(2.3)	(5.0)	(11.7)	(1.9)	(67.9)	
Unattributed Taxes and Fees							
-- Corporate Tax Baseline Scenario,	14,122	20,056	15,774	17,839	23,833	23,261	20,629
Equally to Persons	(9.4)	(2.8)	(4.1)	(14.3)	(2.7)	(66.7)	
-- Corporate Tax Alternative Scenario,	14,696	20,602	15,453	18,376	23,968	22,461	20,325
Equally to Households	(9.9)	(3.0)	(4.1)	(14.9)	(2.7)	(65.4)	
-- Corporate Tax Alternative Scenario,	14,025	19,856	15,506	17,464	23,529	22,920	20,325
Equally to Persons	(9.5)	(2.9)	(4.1)	(14.2)	(2.7)	(66.7)	
Total (including National Insurance Institute Contributions)							
-- Corporate Tax Baseline Scenario,	79,682	132,154	82,675	110,404	149,936	149,166	129,178
Equally to Persons	(8.5)	(3.0)	(3.5)	(14.1)	(2.7)	(68.3)	
-- Corporate Tax Alternative Scenario,	84,924	136,195	83,015	112,516	151,439	147,073	129,178
Equally to Households	(9.0)	(3.1)	(3.5)	(14.4)	(2.7)	(67.4)	
-- Corporate Tax Alternative Scenario,	81,679	132,589	83,271	108,108	149,314	149,291	129,178
Equally to Persons	(8.7)	(3.0)	(3.5)	(13.8)	(2.7)	(68.4)	

Table 2B – Total Annual Government Taxes and Fees Contributions – All Scenarios, Alternative Groupings*, ₪, 2011

	Groups				
	All Immigrants (groups 1, 2,3, 4)	**All Natives (groups 5,6)**	**All FSU Immigrants (groups 1,2)**	**Other Immigrants (groups 3,4)**	**All Natives (groups 5,6)**
Baseline Scenario					
-- Corporate Tax Baseline Scenario, Equally to Households	100,580 (30.0)	147,095 (70.0)	92,269 (11.9)	106,901 (18.1)	147,095 (70.0)
Alternative Scenarios					
-- Corporate Tax Baseline Scenario, Equally to Persons	97,227 (29.0)	149,195 (71.0)	88,888 (11.5)	103,570 (17.5)	149,195 (71.0)
-- Corporate Tax Alternative Scenario, Equally to Households	100,353 (29.9)	147,237 (70.1)	93,919 (12.1)	105,246 (17.8)	147,237 (70.0)
-- Corporate Tax Alternative Scenario, Equally to Persons	97,073 (28.9)	149,292 (71.1)	90,611 (11.7)	101,988 (17.3)	149,292 (71.1)

	Late FSU Immigrants (group 1)	**All Other (groups 2,3,4,5,6)**
Baseline Scenario		
-- Corporate Tax Baseline Scenario, Equally to Households	82,998 (8.8)	136,521 (91.2)
Alternative Scenarios		
-- Corporate Tax Baseline Scenario, Equally to Persons	79,682 (8.5)	137,049 (91.5)
-- Corporate Tax Alternative Scenario, Equally to Households	84,924 (9.0)	136,216 (91.0)
-- Corporate Tax Alternative Scenario, Equally to Persons	81,679 (8.7)	136,731 (91.3)

* All calculations are within group averages.

Source: own calculations – CBS 2011 Expenditure Survey (2013c), CBS 2011 Income Survey (2013a) and the Israel Government Revenues Administration 2011-2012 Annual Report (2013).

Appendix 3 – Governmental Benefits Attribution - Additional Tables

Table 3A –Annual Household Benefits – Alternative Scenario, by Group*, ₪, 2011

	Group						
	1	**2**	**3**	**4**	**5**	**6**	**National Average**
Share of Households (Expenditure Survey)	14.5%	2.9%	4.9%	16.2%	2.3%	59.2%	100%
Share of Persons / Expenditures	11.2%	2.3%	5.0%	11.7%	1.9%	67.9%	100%
National Defense	20,996	21,611	27,827	19,511	22,150	31,061	27,092
Transportation	3,615	3,721	4,791	3,359	3,814	5,348	4,664
Transfers to Local Authorities	1,408	1,450	1,867	1,309	1,486	2,084	1,817
Market Subsidies	1,220	1,255	1,616	1,133	1,287	1,804	1,574
Industry R&D, Infrastructure and Subsidies	912	939	1,209	848	962	1,350	1,177
Public Security n.e.c.	827	852	1,097	769	873	1,224	1,068
Government, Parliament, etc.	764	786	1,013	710	806	1,130	986
Financial and Fiscal Affairs	742	764	984	690	783	1,098	958
Foreign Affairs	554	570	734	515	584	819	715
National Infrastructure	417	429	553	387	440	617	538
Culture and Sports	377	388	500	350	398	558	486
Agriculture	292	301	387	271	308	432	377
Interior Affairs	286	294	379	266	301	423	369
Expenditures n.e.c	264	272	350	246	279	391	341
Development Costs n.e.c.	259	266	343	240	273	383	334
Tourism	200	206	265	186	211	295	258
Housing Infrastructure	143	147	190	133	151	212	185
Religious Services	141	145	187	131	149	209	182
Fire Protection	132	136	175	122	139	195	170
Science Infrastructure	58	60	77	54	62	86	75
Environmental Affairs	50	51	66	46	52	74	64
Communications Affairs	13	13	17	12	13	19	16
Domestic and Foreign Loans	6,459	6,648	8,560	6,002	6,814	9,555	8,334
Government Employees Pensions	4,353	4,240	5,385	4,172	4,166	5,791	5,223
	(12.1)	(2.4)	(5.0)	(12.9)	(1.9)	(65.6)	
Adjustments	-9	-9	-11	-9	-9	-11	-10
	(12.9)	(2.6)	(5.1)	(14.7)	(2.0)	(62.6)	

* All calculations are within group averages.

Source: own calculations – CBS 2011 Expenditure Survey (2013c), CBS 2011 Income Survey (2013a) and the Israel Government Revenues Administration 2011-2012 Annual Report (2013).

Table 3B – Total Annual Household Benefits – All Scenarios, Alternative Groupings*, ₪, 2011

	Groups				
	All Immigrants (groups 1, 2,3, 4)	**All Natives** (groups 5,6)	**All FSU Immigrants** (groups 1,2)	**Other Immigrants** (groups 3,4)	**All Natives** (groups 5,6)
Baseline Scenario					
-- Equally to Households	129,798	128,367	126,118	132,841	128,367
	(38.7)	(61.3)	(17.0)	(21.7)	(61.3)
Alternative Scenario					
-- Equally to Persons	118,430	135,473	114,403	121,776	135,483
	(35.3)	(64.7)	(15.4)	(19.9)	(64.7)
	Late FSU Immigrants (group 1)	**All Other** (groups 2,3,4,5,6)			
Baseline Scenario					
-- Equally to Households	126,536	129,321			
	(14.2)	(85.8)			
Alternative Scenario					
-- Equally to Persons	114,619	131,352			
	(12.9)	(87.1)			

* All calculations are within group averages.
Source: own calculations – CBS 2011 Expenditure Survey (2013c), CBS 2011 Income Survey (2013a) and the Israel Government Revenues Administration 2011-2012 Annual Report (2013).

Table 3C –Total Annual Household Benefits, After Scaling Down, by Group*, ₪, 2011

	Group						
	1	**2**	**3**	**4**	**5**	**6**	**National Average**
Share of Households (Income Survey)	14.5%	2.9%	4.9%	16.2%	2.3%	59.2%	100%
Total, including NII Allowances	126,586	124,044	134,527	132,335	123,345	128,564	128,917
(*Baseline Scenario*)	(14.2)	(2.8)	(5.1)	(16.6)	(2.2)	(59.1)	
Total, including NII Allowances	114,610	113,322	135,965	117,506	113,678	136,327	128,917
(*Alternative Scenario*)	(12.9)	(2.6)	(5.1)	(14.8)	(2.0)	(62.6)	

* All calculations are within group averages.
Source: own calculations – CBS 2011 Expenditure Survey (2013c), CBS 2011 Income Survey (2013a) and the Israel Government Revenues Administration 2011-2012 Annual Report (2013).

Appendix 4 – Net Fiscal Impact - Additional Tables

Table 4A –Annual Net Fiscal Impact - All Scenarios, Alternative Groupings,*, ₪, 2011

	Groups				
	All Immigrants (groups 1, 2,3, 4)	**All Natives (groups 5,6)**	**All FSU Immigrants (groups 1,2)**	**Other Immigrants (groups 3,4)**	**All Natives (groups 5,6)**
Baseline Scenario					
-- Corporate Tax Baseline Scenario,	-29,219	18,728	-33,849	-25,941	18,728
Equally to Households	(-24,936)	(25,511)	(-12,480)	(-12,574)	(25,511)
Alternative Scenarios					
-- Corporate Tax Baseline Scenario,	-21,203	13,722	-25,515	-18,206	13,712
Equally to Persons	(-18,095)	(18,692)	(-9,407)	(-8,825)	(18,678)
-- Corporate Tax Alternative Scenario,	-29,446	18,870	-32,199	-27,595	18,870
Equally to Households	(-25,130)	(25,704)	(-11,871)	(-13,376)	(25,704)
-- Corporate Tax Alternative Scenario,	-21,357	13,819	-23,792	-19,788	13,808
Equally to Persons	(-18,227)	(18,824)	(-8,772)	(-9,592)	(18,810)

	Late FSU Immigrants (group 1)	**All Other (groups 2,3,4,5,6)**
Baseline Scenario		
-- Corporate Tax Baseline Scenario,	-43,537	7,200
Equally to Households	(-13,235)	(13,764)
Alternative Scenarios		
-- Corporate Tax Baseline Scenario,	-34,937	5,697
Equally to Persons	(-10,621)	(10,891)
-- Corporate Tax Alternative Scenario,	-41,611	6,894
Equally to Households	(-12,650)	(13,179)
-- Corporate Tax Alternative Scenario,	-32,940	5,379
Equally to Persons	(-10,014)	(10,283)

* All calculations are within group averages.

Source: own calculations – CBS 2011 Expenditure Survey (2013c), CBS 2011 Income Survey (2013a) and the Israel Government Revenues Administration 2011-2012 Annual Report (2013).

Appendix 5 - Estimating the Value Added Tax Contributions of Tourists

In a study conducted for the Ministry of Tourism by Freeman (2013), the author uses CBS data to conclude that in 2011 tourists spent ₪17,761 million on goods and services purchased in Israel Of the total, ₪4,307 million and ₪2,979 million were spent on accommodations and flights, respectively, which are exempt from value added tax (Israel Tax Authority, 2012b). ₪1,812 million were spent on transportation services – rental cars, buses and fuel. Rental cars are also exempt from value added tax. Because I have no way of knowing the share of rental cars from the total amount, I assume that 50% of this amount (₪906 million) was exempt from value added tax, while the rest was taxed. ₪1,987 million were spent on food services. Food services provided in hotels, as well as food services provided as part of organized tours and conferences are exempt from value added tax. I assume that 25% of this amount (₪497 million) was exempt from value added tax while the rest was taxed. ₪1,950 million were spent on retail shopping (including duty free). I assume that 25% of this amount (₪487.5 million) was exempt from value added tax due to the purchase at various duty free shops in Israel's port of exit, or due to the filing of value added tax returns which tourists are eligible for under certain circumstances. ₪636 million was spent on health services and medicine. Hospitalizations of tourists in Israeli hospitals are exempt from value added tax. Because of the recent rise in "medical tourism" in Israel, I assume that 50% of this amount (₪318 million) was exempt from value added tax, while the rest was taxed. In total, of the ₪17,761 million spent by tourists, I assume that ₪8,266.5 million were purchases for which value added tax was paid. A value added tax of ₪1,140 million was paid for these purchases.