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Effects of the Austrian Income Tax Reform 2015/2016 on Private Consumption: Survey Findings

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Abstract

We use survey findings to analyse the effects of the Austrian income tax reform 2015/2016 on private consumption differentiated by income classes. Using survey data, we also estimate the corresponding average marginal propensities to consume and compare them to applied average marginal propensities to consume in economic models used to analyse the previous two income tax reforms in Austria. The estimated average marginal propensity to consume amounts to approximately 0.46, whereby in tendency increasing from the lowest income class (0.42-0.43) to the highest income class (0.48-0.50). Our estimated average marginal propensity to consume across all income classes basically corresponds to those used in economic models to evaluate the income tax reform 2015/2016. However, our estimated marginal propensities to consume by income classes fundamentally differ from those used in the economic models.

Policy Points

First, our survey findings do not underpin the hypothesis that income tax policies aimed at lower-income classes necessarily have higher stimulus effects on private consumption and hence economic growth. That is, we find no evidence that low-income individuals in Austria have a higher spending rate than high-income individuals. These empirical findings should be considered in the design of future fiscal policy measures in Austria, as laid out in the government program 2017/2018 with regard to the elimination of fiscal drag in the income tax system as well as concerning future income tax reforms.

Second, the fact that the average marginal propensities to consume of different income classes estimated on the basis of our empirical work differ from those used in economic models analysing income tax reductions in Austria, calls for further empirical research in this area. Evidence based marginal propensities to consume help to increase the quality of macroeconomic models as a decision making tool.

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I. Introduction

Since the financial and economic crisis, fiscal stimulus packages based on income tax reductions have been introduced in various countries. As Leigh (2012) points out there are different views concerning the effectiveness of such policies with respect to economic growth in academia and politics. While some argue that endowing individuals with additional money via tax reductions is an effective fiscal policy in order to stimulate growth, others find that financial benefits due to tax-cuts are saved by individuals because of anticipated tax increases in the future and hence have no significant influence on economic growth. Moreover, empirical studies suggest that the reaction of individuals also depends on how tax reductions are financed and designed. That is, there may be different reactions of individuals depending on whether tax reductions are debt-financed or not, have a redistributive character or not, include counter-financing measures or not, and whether tax reductions are temporarily or permanent.

In order to evaluate the effectiveness of changes in disposable income due to a tax decrease on economic growth, the induced effects on private consumption – the marginal propensity to consume – is crucial. In literature three basic approaches to estimate the marginal propensity to consume can be found (Jappelli and Pistaferri, 2011):

The first approach classifies time periods of unexpected income shocks (e.g. unemployment, disability, tax cuts) and investigates in a quasi-experimental setting how consumption of individuals reacts to such changes. The second approach relies on time-series analysis using long-term panel data to investigate the effects of income changes on private consumption. The third approach uses survey questionnaires in order to evaluate the private consumption response to hypothetical or actual income shocks.

In our paper we use the survey approach and asked Austrian individuals whether they use their additional income resulting from the Austrian income tax reform 2015/2016 for spending, saving or paying down debt. In doing so, we use the same survey design as Kronberger (2010) – analysing the effects on private consumption induced by the Austrian income tax reform 2009 – which has been adopted by the author from Shapiro and Slemrod (2009). To calculate the average marginal propensity to consume based on our survey results we use the concept proposed by Shapiro and Slemrod (2003) which was also used by Leigh (2012).

The aim of our paper is first to analyse the effects of the Austrian income tax reform 2015/2016 on private consumption; second to contrast the survey results with the findings of Kronberger (2010) in order to draw conclusions on future designs of tax policies in Austria; and third to compare the estimated average marginal propensities to consume in our paper to average marginal propensities to consume used in economic models analysing the last two Austrian income tax reforms.

The paper is structured as follows. Chapter II reviews pertinent literature, followed by a description of methods used in chapter III and of the Austrian income tax reform 2015/2016 in chapter IV. The survey findings are presented and compared to the findings of the 2009 survey in chapter V. Chapter VI deals with the average marginal propensity to consume derived from our findings. Finally, we draw our conclusions in chapter VII.

II. Literature review

There is a wide range of scientific literature based on different methods (e.g. economic models, statistic models, surveys, quasi-experiments), data bases and observed time-scales (long-term vs. short-term) concerning the effects on private consumption due to income changes. For a review of this literature, we refer to Deaton (1992), Browning and Lusardi (1996), Johnson, Parker and Souleles (2006) as well as Jappelli and Pistaferri (2011). Basically it has to be mentioned that the effects of income changes on private consumption varies significantly depending on whether the income shock is anticipated or not, whether the income shock is temporary or permanent, whether the income shock causes higher or lower disposable income and whether the analysis focuses on short or long-term effects. In our paper, we investigate the short-term effects on private consumption induced by an anticipated positive and permanent income shock due to the Austrian income tax reform 2015/2016 based on a household survey. In doing so, our paper follows Shapiro and Slemrod (2009) and Kronberger (2010). The literature review thus focuses on papers using surveys to estimate consumption effects due to actual changes in income tax systems.

Shapiro and Slemrod (2009) analyse to what extent the US tax rebates in 2008 stimulated consumer spending. The tax rebates amounted to between 300 and 600 USD for single individuals and between 600 and 1,200 US-Dollar (USD) for married couples. Singles as well as married couples with dependent children additionally received 300 USD per child. Based on a rider on the monthly Consumer Survey of the University of Michigan, which was included three months before and two months after receiving the tax rebate checks, the authors found that of those individuals receiving the rebate, 19.9 percent report that they will mainly spend the rebate, 31.8 percent report that they will mainly save the rebate and 48.2 percent report that they will mainly pay debt with the rebate. Moreover, the authors find no evidence of greater spending by low-income individuals relative to high-income individuals (Table 1). The results of their survey show, that 17.8 percent of low-income households and 21.4 percent of high-income households use their tax rebate for consumption. The results of Shapiro and Slemrod (2009) confirm those of Shapiro and Slemrod (2003), where the authors investigated the effects of the US-tax rebate 2001 on consumer spending.

The U.S. Bureau of Labour Statistics (2009) also examines the impact of the 2008 US tax rebates on private expenditures by including special questions in the interview component of the Consumer Expenditure Survey from June 2008 through March 2009. 49 percent of recipients, which received a tax rebate, used the money to pay off debt. 30 percent of individuals surveyed used the additional money, which aimed to serve as economic stimulus payments, for consumption and 18 percent of the interviewees saved it. Although there is some variation, this pattern – according to the authors – generally holds true across income classes (Table 1). Thus, the U.S. Bureau of Labour Statistics (2009) does not find evidence of greater spending by low-income individuals relative to high-income individuals. The results of the survey show that 31.5 percent of low-income individuals and 31.1 percent of high-income individuals use their tax rebate mainly for consumption.

Table 1: Comparing proportion of tax rebate used for consumption

Shapiro, Slemrod (2009)		US Bureau of Labor Statistics (2009)		Leigh (2012)		Kronberger (2010)	
Income	Consumption rate	Income	Consumption rate	Income	Consumption rate	Income	Consumption rate
less than 20.000 USD	17.8%	less than 10.000 USD	31.5%	less than 20.000 AUD	40%	less than 14.000 EUR	42%
20.000 - 35.000 USD	21.0%	10.000 - 19.999 USD	32.1%	20.000 - 39.999 AUD	45%	14.000 - 28.000 EUR	47%
35.000 - 50.000 USD	16.6%	20.000 - 29.999 USD	31.0%	40.000 - 59.999 AUD	31%	28.000 - 42.000 EUR	49%
50.000 - 75.000 USD	18.7%	30.000 - 39.999 USD	28.7%	60.000 - 79.999 AUD	39%	42.000 EUR and more	63%
75.000 USD and more	21.4%	40.000 - 49.999 USD	28.6%	80.000 - 99.999 AUD	35%		
not specified	24.9%	50.000 - 69.999 USD	28.5%	100.000 - 149.999 AUD	49%		
		70.000 USD and more	31.1%	150.000 AUD and more	44%		
All consumer units	19.9%	All consumer units	30.2%	All consumer units	40.5%	All consumer units	46%

Source: Own illustration based on Shapiro, Slemrod (2009), US Bureau of Labour Statistics (2009) and Leigh (2012)

For Australia, Leigh (2012) analyses the effects of the fiscal stimulus payments in 2008/2009 on private spending based on a consumer survey. The fiscal stimulus payments in December 2008 included 1,400 Australian Dollar (AUD) for single pensioners and 2,100 for pensioner couples. Moreover, there were carer payments (1,000 AUD per person) and child payments (1,000 AUD per child). Together these payments amounted to approximately 8.8 billion AUD. In April and May 2009 an additional tax bonus for working Australians was introduced in the backdrop of global economic slowdown. The payment was between 900 AUD for individuals with taxable incomes of 80,000 AUD or less and 250 AUD for taxpayers with incomes between 90,000 AUD and 100,000 AUD. For families with children required to attend school, 950 AUD per child was delivered and a single-income family bonus of 900 AUD per family was granted. In sum, the second stimulus payments in spring 2009 amounted to around 12 billion AUD. The analysis of the effects of the stimulus payments on consumer spending is based on a telephone survey of 1,201 individuals conducted from 17-30 June 2009. Of the respondents receiving payments, 40.5 percent report that they will mainly spend the additional money, 24.4 percent report that they will mainly save the rebate, and 35.5 percent report that they will mainly pay debt with the rebate. Leigh (2012) does not find evidence of greater spending propensity by low-income individuals relative to high-income individuals (Table 1). The results of the survey show that 40 percent of low-income individuals and 44 percent of high-income individuals use their stimulus payment mainly for consumption.

For Austria, Kronberger (2010) analyses how Austrian tax payers use the additional income derived from the tax reduction as a consequence of the 2009 income tax reform. The overall permanent tax relief mainly induced by a reform of the income tax schedule amounting to around 3 billion Euro (EUR). The author conducted a survey based on the design of Shapiro and Slemrod (2009) and found that 46 percent of the interviewees will mainly spend, 26 percent mainly save, and 4 percent mainly pay off debt with the additional money. In line with the other mentioned studies, Kronberger (2010) does not find that low-income individuals have a higher spending propensity than high-income individuals (Table 1). In fact, 63 percent of high income-respondents were mainly spending their additional income, whereas only 42 percent of low-income interviewees did.

Swisslife (2016) conducted a survey, which queried the effects of the Austrian income tax reform 2015/2016 on private consumption. Of those respondents having more disposable income after the tax reform, 46 percent report that they will spend the additional money, 38 percent report that they will mainly save or invest the additional money, and 19 percent report that they will pay down debt with the additional money. Swisslife (2016) does not analyse the effects on private consumption differentiated by income classes.

III. Methodological approach

In economic literature three basic approaches to estimate the effects of income changes on private consumption can be found (Jappelli and Pistaferri, 2011): The first approach classifies time periods of unexpected income shocks (e.g. unemployment, disability) and investigates in a quasi-experimental setting how private consumption reacts to such changes. The second approach relies on aggregate time-series analysis using long-term panel data to investigate the effects of income changes on private consumption. The third approach uses survey questions in order to evaluate the private consumption responses to hypothetical or actual income shocks.

The following disadvantages concerning the quasi-experimental approach were identified (Japelli and Pistaferri, 2014): First, it is limited to group comparisons. Second, the estimations are often imprecise. Third, there is a lack of evidence that the results, mainly focusing on anticipated income changes, are valid for unanticipated and realised income changes, respectively.

The time-series approach has following shortcomings: Tax reforms are infrequent and mostly accompanied by other external events (Shapiro and Slemrod, 2003). In this context, Leigh (2012) points out that especially with monthly or quarterly time-series data, it is very challenging to separate the impact of policy measures from other external shocks. Moreover, it is difficult to know the counterfactual. Thus, it is not clear how private consumption would have developed in the absence of a particular policy measure (Leigh, 2012).

The third approach circumvents the difficulties mentioned above by asking direct survey questions on how individuals plan to use their hypothetical or actual additional income due to a tax policy (Japelli and Pistaferri, 2014). The main doubt concerning the validity of the survey responses refers to the extent of individuals underreporting or over-reporting their consumption following changes in the tax system. However, economic analysis based on surveys is standard in economics as Shapiro and Slemrod (2003) point out and one has to bear in mind that the survey approach “[...] provides a useful supplement to time series analysis” (Leigh, 2012, 1). Moreover – even when there is a systematical misreporting – survey results based on identical or similar questions can be used to make comparisons over time and across nations.

Based on Shapiro and Slemrod (2009) and methodically identical to Kronberger (2010), we use the survey approach in order to analyse the effects of the Austrian income tax reform 2015/2016 on private consumption. A representative telephone and online survey for Austria was conducted by the Market Institute from 16-29 February 2016. 1,003 interviewees aged 15 or older were chosen by a system of quota sample³ and random sample, which implicates a maximal statistical variance of the results of 3.46 percent at a 95 percent significance level. The participation rate amounted to about 30 %. We did not conduct a non-response analysis. Regarding income, a slight over-reporting of the respondents has to be assumed. Moreover, 200 self-employed have been interviewed using the identical survey method during the same time period. Because of the smaller sample and the resulting higher statistical variance (7.07 percent at a 95 percent significance level), we do not present these survey results.

Our survey started, by asking fundamentally questions about the Austrian income tax reform 2015/2016. E.g., whether the income tax reform was known and whether additional money had

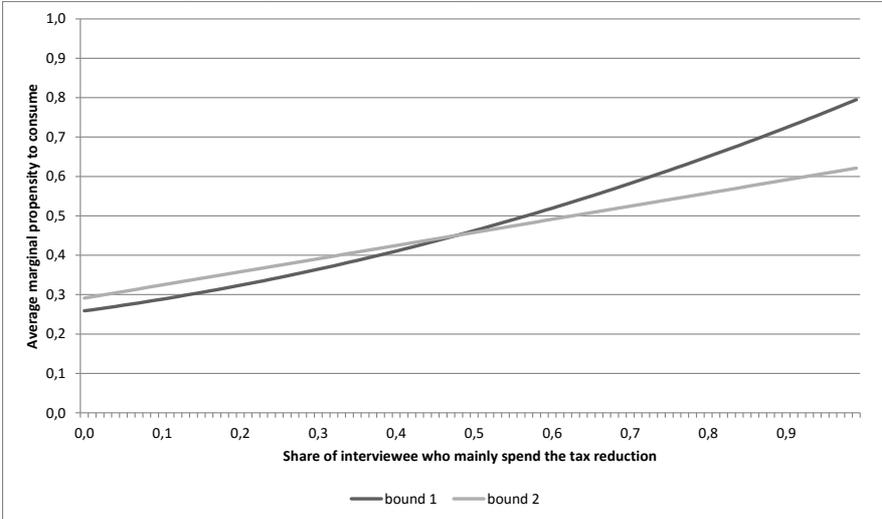
³ based on age, sex, education and region.

already been received. The main part of the income tax survey addressed the effects on household consumption due to the tax relief. Therefore, the interviewees were asked how they had or would use the additional money. The response options were as followed: “mainly for spending”, “mainly for saving in order to make a purchase later 2016”, “mainly for saving”, “mainly for paying down debt”, “other” and “don’t know”. Finally, we asked the interviewees about their knowledge of the counter-financing measures and to what extend they had been and would be affected by these measures, respectively. See Appendix for selected questions of the survey.

In our survey, we did not directly query the marginal propensity to consume (MPC), but rather gathered the fractions of respondents who use the additional money caused by the tax relief mainly for spending, mainly for saving, and mainly for paying off debt, respectively. Following Shapiro and Slemrod (2009) we choose this approach because from our point of view directly asking regarding the fraction of the tax relief which is used for consumption would have been too difficult to answer for the interviewees. Moreover, when asking this way there is, according to Shapiro and Slemrod (2003), a tendency receiving answers of round values – e.g. 0, 50-50, 100 percent. Thus, it is not clear whether asking about fractions would have yielded more informative or more valid results.

Since individuals’ MPC are important parameters in order to evaluate the overall economic effects of fiscal policies, Shapiro and Slemrod (2003) propose an approach to translate the collected shares into an aggregate MPC, using assumptions about what range of individual MPC corresponds to “mainly spend” and the distribution of those individual MPCs. The first assumption made by the authors is that interviewees respond “mainly spend” only if their individual MPC is higher than 0.5. Based on this premise Shapiro and Slemrod (2003) build various probability density functions of interviewees’ individual MPC, starting always at a non-negative point, where the MPC is zero, then linearly increasing until a maximum point – which is by assumption at the fraction of respondents reporting “mainly spend” according to the survey data – after which it linearly decreases, guaranteeing that the integration value of the probability density function is 1. It is important to note that in the calculation of the aggregate MPC (integral of the MPC’s density over a specific range of the function), each individual has the same weight. For a detailed explanation of the approach, we refer to the appendix of Shapiro and Slemrod (2003).

Figure 1: Relationship between respondents who mainly spend the tax reduction and the average marginal propensity to consume according to Shapiro and Slemrod approach



Source: Own calculation based on Shapiro and Slemrod (2003) following Leigh (2012)

Using the approach proposed by Shapiro and Slemrod (2003) and following Leigh (2012), we can calculate the relationship between the share of interviewees who mainly spend the tax reduction and the corresponding average MPC. It has to be pointed out that under extreme assumptions, the relationship is not close to reality. Shapiro and Slemrod (2003) give the example, that if “mainly spend” corresponds to an MPC of 0.51 and “mainly not spend” corresponds to an MPC of 0.49, then the average MPC is close to 0.50 regardless of what the survey reveals. Another case would be if all interviewees have a MPC of 0.4, which would then be also the average MPC. In this case, the Shapiro-Slemrod approach would be also misleading. Figure 1 depicts two relationships resulting of the two proposed probability density functions by Shapiro and Slemrod (2003), which produce the most extreme results at the tail of the distribution⁴. As Leigh (2012) highlights, the Shapiro-Slemrod approach provides reasonable results in the middle of the distribution, but less reliable results at the tail of the distribution. That is, if only one percent of the interviewees responds “mainly spending”, then the average MPC would be between 0.26 and 0.29. If 99 percent of the recipients respond “mainly spending”, then the average MPC would be between 0.62 and 0.79. Hence, the Shapiro-Slemrod approach delivers the most reliable results, when about 25 percent until 75 percent of interviewees report “mainly spending”, which is the case in our survey results.

IV. Austrian income tax reform 2015/2016

In March 2015, the Austrian coalition government agreed on an income tax reform, which was finally implemented in January 2016. A detailed description is provided by Schratzenstaller (2015). When fully in force, the income tax reform will have an income tax relief volume of about 5.2 billion EUR. The core measure of the reform was a change in the income schedule, causing an income tax reduction of about 4.35 billion EUR. Moreover, the negative income tax (a paid out premium) was extended from 100 EUR to 400 EUR per year for employees and in the amount of 100 EUR per year newly introduced for pensioners, which leads to an additional relief of about 370 million EUR. The child allowance was doubled from 220 EUR to 440 EUR, inducing an income tax revenue loss of around 100 million EUR. The raise of the commuting tax credit as well as the increase of the commuter allowance for low-wage earners leads to a tax revenue loss of 160 Million EUR. Finally, business and entrepreneurs marginally benefit from following minor relief measures: Social security contribution relief for farmers and entrepreneurs with low income (60 million EUR), a tax relief for medium-sized enterprise financing companies (50 million EUR) and a raise of allowance for employee equity participation.

The income tax reform is counter-financed in order to assure a budget-neutral implementation. Corresponding measures concern measures to combat tax fraud (2.2 billion EUR), removing exemptions in income tax and VAT (860 million EUR), raising the withholding tax on dividends and on profits from the sale of real estate as well as raising the land transfer tax (400 million EUR). On the expenditure-side, spending cuts by the federal and state governments (1.1 billion EUR) are planned. Finally, a certain degree of self-financing of the income tax reform is assumed. All in all, counter-financing measures of the income tax reform reduce the amount of tax relief from 5.2 billion EUR to 1.8 billion EUR.

⁴ For the calculation of the two relationships, we used as Leigh (2012) did following two probability density functions proposed in the appendix of Shapiro and Slemrod (2003). Bound 1: $a=1.643$, $b=1.643$, $c=0.967$ and bound 2: $a=0$, $b=2.314$, $c=0.864$.

The key measure of the income tax reform, the change in the income tax schedule, is designed as depicted in Table 2. The numbers of tax classes have been extended from four to seven. The initial tax rate has been reduced from 36.5 percent to 25 percent, however only for a maximum taxable income up to 18,000 EUR a year. The marginal tax rates then rise from a yearly taxable income between 18,001 EUR and 90,001 EUR step by step up to 50 percent. For a yearly taxable income over 1 million EUR, a temporary maximum marginal tax rate of 55 percent has been introduced until 2020.

Table 2: Income tax rates 2015 vs. income tax rates 2016

income tax rates 2015		income tax rates 2016	
taxable income	marginal tax rate	taxable income	marginal tax rate
0 - 11,000 EUR	0.0%	0 - 11,000 EUR	0.0%
11,001 - 25,000 EUR	36.5%	11,001 - 18,000 EUR	25.0%
25,001 - 60,000 EUR	43.214%	18,001 - 31,000 EUR	35.0%
60,001 and more	50.0%	31,001 - 60,000 EUR	42.0%
		60,001 - 90,000 EUR	48.0%
		90,001 - 1,000,000 EUR	50.0%
		1,000,001 EUR and more	55.0%

Source: Schratzenstaller (2015)

The percentage income tax reduction is characterised by a regressive effect. At a yearly taxable income of 15,000 EUR, the income tax is reduced by 46.19 percent relative to the former income tax system. At 30,000 EUR yearly taxable income the tax relief is 19.86 percent, at 60,000 EUR yearly taxable income the tax relief 9.1 percent, at 100,000 EUR yearly taxable income the tax relief is 6.04 percent and decreases further until at a yearly taxable income of about 1,050,000 EUR the break-even point is reached due to the raise of the maximal tax rate (Schratenstaller, 2015). Moreover, one has to bear in mind that the removal of exemptions in income tax, the raise of the withholding tax on dividends and on profits from the sale of real estate as well as the raise in the land transfer tax tends to affect higher incomes more (Budgetdienst, 2015) and hence further intensifies the regressive effect of the income tax reform. Concerning household income, the income tax reform leads to an increase of the annual household income for the lowest income decile of 1.1 percent, for the middle-income household of 3.5 percent and for the highest decile of 3.3 percent. The average household income gain is 3.1 percent (Rocha-Akis, 2015).

V. Austrian income tax reform survey 2016

As described in chapter III, the main aim of our survey is to ask Austrian individuals⁵ how they will use or how they have already used their additional income following the income tax reform 2015/2016 (see chapter IV). In chapter V.1 the survey findings are described. Because of the identical survey questionnaire used in Kronberger (2010), who analyses the private consumption effects of the Austrian income tax reform 2009, it is possible to discuss the differences between the two survey results in chapter V.2.

⁵The survey focuses on individual income and not on household income. Low income interviewee (e.g. part-time employee) may live in double-income-households, which in turn may have some effects of the response how the additional money is used. These effects are hard to analyse and not scope of the paper. However, the analysis on the individual level is from high relevance in economic policy, since the Austrian tax system is based on individual taxation, does not provide household taxation and is characterised through a high progressive taxation.

1. Results of the Austrian income tax reform survey 2016

95 percent of the interviewees knew that the income tax reform was already implemented at the time the survey was conducted. In this context, no big differences concerning sex and geographic distribution of the persons interviewed were found. However, the share of interviewees with higher income, knowing that the income tax reform was already into force was significantly higher (99 percent) than the share of interviewees with lower income (90 percent). The same holds true with respect to educational attainment. Whereas only 82 percent of interviewees, who had mandatory school-leaving qualification knew about the income tax reform, 99 percent of interviewees with university degree did. Moreover, until the age of 60, the older the interviewees were, the higher was the share of interviewees knowing that the income tax reform was implemented. These results suggest, that interviewees with a higher tax burden (higher income class, better educated, etc.) were better informed. At the same time, it has to be pointed out that, despite of the differences described, the introduction of the income tax reform 2015/2016 was generally well known by all interviewees.

Two thirds of the interviewees already had experienced additional income due to the income tax reform 2015/2016. The higher the education, the higher the income and the older the interviewees the higher was the knowledge of the additional income. Moreover, full-time employed interviewees had a better knowledge than part-time employed respondents. These results can obviously be attributed to the fact, that low-income interviewees either pay only little income tax or none at all. However, also the latter benefit from the income tax reform 2015/2016 via the negative income tax increase, which was already partly implemented for the tax year 2015⁶. That is, low income-interviewees, who do not pay income tax at all, generate their additional income by submitting their tax assessment for 2015 in spring 2016. Hence all interviewees, whether they have already experienced additional income at the time the survey was conducted or not, will benefit in the year 2016 from the measures introduced by the income tax reform 2015/2016.

Looking at the survey data (Table 3)⁷, 36 percent of interviewees plan to increase spending immediately. A smaller fraction of respondents (28 percent), receiving incomes below 1,000 EUR, is prepared to expand consumption, whereas 40 percent of high-income individuals with a monthly income above 3,001 EUR plan to do so. Employees with incomes between 1,001 EUR and 2,000 EUR are most prepared to spend their tax relief with 45 percent expanding consumption. Interestingly, a relatively small share of 31 percent of respondents, which receive between 2,001 EUR and 3,000 EUR, are eager to consume the savings of the tax relief immediately. Clearly, it cannot be confirmed that the lowest incomes have a higher spending share than higher incomes.

⁶For the tax year 2015, the negative income tax for workers was increased from 110 EUR to 200 EUR and for pensioners newly introduced in the amount of 55 EUR. When fully introduced in the tax year 2016, the negative income tax amounts to 400 EUR for workers and 200 EUR for pensioners.

⁷ Although the overall sample is representative for Austria (see chapter III), by income classes the survey sample is not equivalent to the income distribution by cases according to wage tax statistics of Statistic Austria. Whereas respondents in the lower two income classes are underrepresented in our sample, interviewees in the two higher income classes are overrepresented. From our point of view our main conclusions are not undermined by that circumstance for following reasons: First, the maximal statistical variance of the results by income classes amounts to 3.46 percent at a 95 percent significance level and second our results by income classes corresponds to those of Kronberger (2010) who uses the same survey design.

Table 3: Spending plans of respondents

Will the tax reduction lead you mostly to increase spending, mostly to increase saving or mostly to pay of debt?					
Monthly Income	All respondents	less than 1,000 EUR	1,001 to 2,000 EUR	2,001 to 3,000 EUR	3,001 EUR and more
	n=747	n=117	n=256	n=198	n=176
Increase spending	36%	28%	45%	31%	40%
Saving in order to make a purchase later this year	14%	14%	10%	19%	17%
Saving	16%	16%	18%	15%	15%
Paying down debt	11%	15%	11%	14%	9%
Other	8%	10%	5%	10%	9%
Don't know	14%	16%	10%	12%	9%

Source: Survey data, market institute

14 percent of all interviewees use the tax relief for a purchase which they make later the same year. The share of the two lower income classes accounts for 14 percent and 10 percent, respectively. In the two higher income classes shares of 19 percent and 17 percent can be found. Adding up the interviewees' share which immediately spend their additional income and the share of respondents, which make a purchase within 2016, we find a spending share of 50 percent for 2016. Again the lowest income class has also the lowest spending share (42 percent) followed by the income group 2,001 to 3,000 EUR (50 percent) and the income classes 1,001 to 2,000 EUR (55 percent). The highest income group, 3,001 EUR and more, has also the highest spending share amounting to 57 percent.

16 percent of the respondents save the extra pay of the tax relief. The two lower income classes show relative shares of 16 percent and 18 percent, whereas the two higher income classes are slightly less prepared to save with a share of 15 percent. 11 percent of all respondents plan to use the tax relief for servicing their debt. Respondents of the lowest income class have the highest share (15 percent), whereas the interviewees of the highest income class are less prepared to repay debt with a share of 9 percent. Moreover, 11 percent of the second lowest income class and 14 percent of the income class 2,001 to 3,000 EUR want to use the additional money for paying down debt. 8 percent of respondents have a different use for the extra income which was not asked for and 14 percent do not know how they will use the extra income.

One may ask, whether the interviewees actually implement their plans to "mostly spend", "mostly save" and "mostly pay down debt" in 2016. According to Sham et al. (2009), who tested the reliability of the responses for the 2008 tax rebate in the US raised by Shapiro and Slemrod (2008) this can be assumed. The authors re-interviewed the persons interviewed in spring 2008 in fall/winter 2008 and – inter alia – asked them what they have actually done with their tax rebate received in spring: The central message remained the same. The spending rate showed almost no changes. The rate of "mostly paying down debt" slightly increased at the expense of "mostly saving". Although the aggregate answers stayed more or less the same, changes on the individual level emerged. E.g., interviewees who reported to "mostly spend" in spring reported to in fact "mostly save" the tax rebate in the fall/winter survey. Respondents who deviated from their plans during the year generally, did so because of unplanned changes in personal circumstances or economic conditions. Hence, Sham et al. (2009) conclude that the survey results of spring 2008 are a fairly reliable measure of individuals' plans for spending the tax rebate. At the individual level plans may change, usually for a good reason, but no systematic pattern to changes was identified.

2. The results of the Austrian income tax reform survey 2009 and 2016 compared

Compared to the income tax reform in 2009, the income tax reform in 2016 differed in so far as tariff reductions amounted to 5.2 billion EUR with respect to personal income tax were higher, but tax exemptions in personal income tax were abolished, other taxes were increased as well as measures against tax fraud were introduced (obligatory cash registers, obligatory issuance of cash receipts, etc.). All these counter-financing measures accounted to around 3.4 billion EUR. Some counter-financing measures are geared toward higher income classes (e.g. increase property transaction tax, higher taxation for the use of a firm owned car, increase in capital gains tax, etc.). Thus, the net tax relief in 2016 (1.8 billion EUR) was smaller than in 2009 (3 billion EUR).

Despite the difference in the net tax relief and the counter-financing measures for 2016 already described, the timing and the pay of the tax relief also differed. Income taxes of employees are withheld on a monthly basis in Austria. Therefore, in case of a tax reduction the relief is also paid on a monthly basis – one twelfth – to Austrian employees. In 2009, the income tax reform entered into force on 31st March 2009 and led to a retroactive pay of tax reliefs starting from January 2009. Therefore, in 2009 the majority of the employees received 4 to 6 cumulated monthly tax reliefs, which can be interpreted as some kind of lump sum payment. Thereafter the tax reliefs were paid again on a monthly basis. Moreover, it can be assumed that the prolonged low GDP growth rates between 2009 and 2016 may have also had an impact on how the tax relief is used by the tax payers.

Generally, it has to be noted that – compared to the survey in 2009 – a higher share of interviewees knew that the income tax reform was already implemented at the time the survey was conducted (2009 survey: 72 percent, 2016 survey: 95 percent). Also, a significantly higher share of respondents recognised their additional income as a consequence of the tax reform in the 2016 survey (66 percent) compared to the 2009 survey (51 percent).

Table 4 shows the changes in the survey results of the income tax reform 2015/2016 relative to 2009 concerning the use of the additional income due to the tax reliefs. The use for immediate spending increase has on average dropped by 10 percentage points (pps) which was partly shifted to purchases later the year with an increase of 1 pps. The highest income class showed the most pronounced drop of 23 pps. The share of the savers has increased on average by 3 pps. Mostly the lower income classes plan to save more. On average, preparedness to use the extra income of the tax relief for paying debt has risen by 7 pps. The lowest income class showed the highest change with an increase of 12 pps within this group. All in all, the respondents were more decisive with regard to future plans. The group of interviewees who did not know about their future plans dropped by 12 pps.

Table 4: Change spending plans of respondents – Tax reform 2009 and 2016 compared

Will the tax reduction lead you mostly to increase spending, mostly to increase saving or mostly to pay of debt? (Changes relativ to tax income survey results 2009)					
Monthly Income	All respondents	less then 1,000 EUR	1,001 to 2,000 EUR	2,001 to 3,000 EUR	3,001 EUR and more
Increase spending	-10 pps	-14 pps	-2 pps	-18 pps	-23 pps
Saving in order to make a purchase later this year	+1 pps	+2 pps	-8 pps	+4 pps	+4 pps
Saving	+3 pps	+2 pps	+3 pps	+1 pps	-4 pps
Paying down debt	+7 pps	+12 pps	+4 pps	+7 pps	+4 pps
Other	+6 pps	+8 pps	+3 pps	+9 pps	+8 pps
Don't know	-12 pps	-15 pps	-7 pps	-3 pps	-4 pps

Source: Survey data, market institute

The decrease of the interviewee's share, which is mainly spending the additional income may be attributed to the following reasons: As argued above, in the course of the income tax reform 2009, the first effect on interviewees caused by the reform was a kind of "lump sum" tax relief payment based on 4-6 monthly income. Such a one-time bonus may be interpreted as windfall gain by the interviewees and hence is more likely to be used for consumption than a tax reduction (e.g. Sham et al., 2012; Leigh, 2012). Additionally, the abolishment of tax exemptions in personal income taxation, the increase of other taxes as well as the introduction of measures against tax fraud may lead to uncertainties what the net-tax relief really is. This would underpin the results concerning a higher decline in the spending share of high income interviewees relative to low income interviewees, because - as explained above - the counter-financing measures are geared towards high income classes.

The marked increase of the respondents' share who is predominantly repaying debt may be linked to following reasons: First, the financial and economic crisis in 2008 induced a continuous period of low economic growth and steadily increasing unemployment. As a result, respondents of the 2016 survey face more uncertainties about the future and hence are more willing to use the additional money to repay their debt. Second, the development in the Austrian real estate sector seems also – especially for high income interviewees – of importance. In 2009, private households demanded 7.8 billion EUR of new loans for housing purposes. By 2015 this demand has steadily increased up to 14.7 billion EUR according to statistics of the Austrian Central Bank OeNB. Hence, it almost doubled by a rise of 89 percent. In the same period the loan burden of households (without interest payments) has risen from close to 33 percent to 40 percent of disposable income in 2015 (Schneider et al., 2016). This trend goes in line with the development of the Residential Property Price Index of the OeNB which increased by 40 percent in the same period. Residential property transactions show a rising trend as well.

VI. Survey results and the average marginal propensity to consume

The marginal propensity to consume (MPC) influences – as mentioned in chapter III – the effectiveness of fiscal policies with respect to private consumption and hence induced economic growth. In the context of this paper, it is an expression of the share of the tax relief used for additional private spending. Moreover, the average MPC is an essential input variable in economic models (e.g. macroeconomic models, computable general equilibrium models) and therefore determines – among other exogenous variables – the results of macroeconomic analysis of fiscal policies. In chapter 1 we describe the resulting average MPCs by income classes based on our survey data as well as the corresponding average MPC to the results presented in Kronberger (2010) and Swisslife (2016). In

chapter VI.2 we discuss to what extent our calculated average MPC coincide with the used average MPC in ex-ante economic analyses of the last two Austrian income tax reforms.

1. Estimated average marginal propensity to consume based on survey results

Using the Shapiro-Slemrod approach described in chapter III, we can transform our survey results in average MPCs – also differentiated by income classes (Table 5). According to our survey data, 50 percent of respondents use the additional disposable income due to the tax relief 2016 mainly for immediately spending or spending within 2016 (chapter V). This results in an average MPC of 0.46 across all income classes for the year, the reform came into force. The average MPC by income classes is according to our survey findings for the average earners within this range. For low earners it tends to be lower (0.42-0.43) and for high earners it tends to be higher (0.48-0.50). Due to the statistical variance of the survey results and the inaccuracies in connection with the estimation of the average MPC, the results have to be treated with caution. We can, however, conclude that we find no evidence of a higher MPC in low-income classes relative to high-income classes.

Table 5: Resulting average MPC by income classes for the Austrian income tax reform 2009 and 2015/2016 based on survey data

Studies	All income classes	less than 1,000 EUR	1,001 to 2,000 EUR	2,001 to 3,000 EUR	3,001 EUR and more
Kronberger (2010)	0.48-0.51	0.47-0.48	0.50-0.54	0.50-0.54	0.53-0.60
Results Survey 2016	0.46	0.42-0.43	0.47-0.49	0.46	0.48-0.50

Source: Own illustration based on Kronberger (2010) and current survey results

Compared to the results of Kronberger (2010) which – using the Slemrod-Shapiro approach – imply an average MPC between 0.48-0.51, our average MPC is slightly lower. The possible explanations are identical to those described in chapter 2, since the average MPC is calculated based on the survey data. Moreover, we conclude that based on the results of Kronberger (2010) no evidence can be found that lower income classes have a higher MPC with regard to income tax reforms than higher income classes, which in turn underpins our findings.

The estimated average MPC across all income classes based on the findings of the Swisslife (2016) survey amounts to 0.44 for the Austrian income tax reform 2015/2016, which is about 0.02 points below our results. The wording of the question in the survey, however, explains at least some of the difference. Whereas in our survey, the percentage fraction of respondents who report spending, are interviewees who use their additional income *mainly* for consumption, in Swisslife (2016) these are interviewees who use their additional income *only* for consumption. Thus, the percentage fraction of people who report spending in Swisslife (2016) is a subset of the percentage fraction of people who report spending in the current paper and Kronberger (2010). As a result, the findings of Swisslife (2016) – see chapter II – may be expected to be close to our findings when using the same wording.

2. Average marginal propensity to consume in economic models analysing Austrian income tax reforms

In order to contrast our calculated average MPC with average MPC used in economic models, which evaluate the previous two income tax reforms in Austria, we use model based ex-ante analyses of the Austrian Institute of Economic Research (WIFO) and the Institute of Higher Studies (IHS).

The WIFO evaluates the overall economic effects of the Austrian income tax reform in 2009 as well as in 2016 by the use of the macroeconomic model Macromod. For the 2009 income tax reform, Breuss

et al. (2009) estimate a GDP growth of about 0.4 percent using a MPC across all income classes of 0.34 (Table 5). For the 2015/2016 income tax reform, Baumgartner and Kaniovski (2015) estimate – based on the main scenario – a GDP growth of about 0.25 percent. The used average MPC in the model was updated relative to the analysis of the income tax reform 2009. In the 2016 analysis, the short-term MPC varies by net-equivalised household income classes, starting from 0.38 for the 3rd net-equivalised household income tertile, over 0.5 for the 2nd net-equivalised household income tertile up to 0.8 for the 1st net-equivalised household income tertile, resulting in an average short-term MPC of 0.5 (Table 5). These average MPC by net-equivalised household income tertiles have been assumed by the authors based on an average MPC across all household income classes of 0.5 derived from an aggregated consumption function using ESA-data and net-equivalised household income data based on the EU-SILC-survey.

Table 6: Average MPC by income classes used as model input for ex-ante evaluation of the Austrian income tax reform 2009 and 2015/2016

WIFO studies income tax reforms 2009 and 2015/2016	All income classes	First income tertile	Second income tertile	Third income tertile
Breuss et al. (2009)	0.34	0.34	0.34	0.34
Baumgartner and Kaniovski (2015)	0.5	0.8	0.5	0.38

Source: Own illustration based on Breuss et al. (2009) and Baumgartner and Kaniovski (2015)

The IHS also analyses the macroeconomic effects of the last two income tax reforms using their computable general equilibrium model TaxLab (Berger et al., 2016). For the income tax reform 2009, Berger et al. (2009) estimate an additional GDP growth of 0.35 percent for 2009 and 0.5 percent for 2010. According to Hofer et al. (2015) the induced GDP growth by the income tax reform 2015/2016, assuming full implementation of the associated financing measures, amounts to 0.51 percent in 2016 and increases to 0.76 percent in 2026. In the used TaxLab Model, the MPC is not an exogenous input variable, but endogenously determined out of expected total lifetime wealth consisting of financial wealth, the present value of future labour, and pension income as well as transfers (Berger et al., 2016). As a result, the endogenous MPC is age-dependent in the model and also depending on additional parameters such as preference parameters, policy parameters and future mortality rates and hence varies subject to different simulations. However, for the main scenario of the 2016 income tax analysis presented in Hofer et al (2015), Forstner and Davoine (2017) calculate the endogenous average MPC resulting in the model. The short-term average MPC corresponds to 0.22, and the average long term MPC to 0.56. Our average MPC over all income classes (0.46) lies within this range. However, it is much higher than the short-term average MPC according to Forstner and Davoine (2017), which refers to the year 2016 as our empirical average MPC does.

Because of the model structure used by the IHS (see above), we can only compare our findings concerning the average MPC by income classes with those used by the WIFO. Contrasting the average empirical MPC by income classes based on Kronberger (2010) with the average MPC by income classes used as model input variable in Breuss et al. (2009) for the income tax reform 2009 we can conclude following. The average MPC used for the income tax analysis is first lower than the findings of Kronberger (2010) suggest and second does not differentiate between income classes.

The average short-term MPC across all income classes used for the income tax analyses 2015/2016 (Baumgartner and Kaniovski, 2015) is more or less identical to our findings. However, the assumed differences in the average MPC by net-equivalent household income tertiles by the authors do not correspond to our empirical short-term MPC by income classes. Whereas the used short-term MPC in

Baumgartner and Kaniovski (2015) is highest for low-income households (0.8) and markedly decreases with increasing household income to 0.38, our empirical findings show that there is not much difference by income classes (between 0.42 and 0.50). Moreover, we do not find, that the average short-term MPC decreases with increasing income. In fact, respondents in the low income class show a lower MPC than those belonging to the high income class, with interviewees' MPC in the two medium income classes lying in between.

Of course, the comparison of the resulting short-term MPC by income between Baumgartner and Kaniovski (2015) and our survey results must be seen as rough estimation. The used income tertiles in Baumgartner and Kaniovski (2015) are based on equivalised net-household income from EU-SILC data. Our MPC estimation by income classes is based on individual gross-income. Nevertheless, from our point of view the comparison can be used to show that our empirical results do not underpin the assumed (markedly) higher MPC for low incomes relative to high incomes in Baumgartner and Kaniovski (2015). As a result, Baumgartner and Kaniovski (2015) may overestimate the effects on economic growth induced by increasing low income household consumption and underestimate the effects on economic growth induced by increasing high income household consumption because of the income tax reform 2015/2016.

VII. Conclusions

For the second time and methodically identical to Kronberger (2010), we use survey evidence to estimate the effects of the Austrian income tax reform 2015/2016 on private consumption differentiated by income classes. Based on our survey data, we use an approach suggested by Shapiro and Slemrod (2003) to estimate average marginal propensities to consume. We finally compare our empirical estimated average marginal propensities to consume to those used as input variables in economic models, analysing the previous two income tax reforms in Austria.

Our survey findings suggest that interviewees with an income over 1,000 EUR a month spend between 50 percent and 57 percent of their additional income due to the income tax reform. Respondents with an income below 1,000 Euro a month, however, have a significantly lower spending propensity (42 percent). Related to the structure of the results, i.e. queried individuals in the lowest income class have a smaller spending share than interviewees in other income classes, these findings are consistent with those of the income tax reform 2009 by Kronberger (2010).

The absolute values of the respondents spending shares in our survey are, compared to the 2009 survey results, lower. The spending share across all income classes decreased from 59 percent to 50 percent, with a higher decline in higher income classes than in lower income classes. We identify several possible reasons for the lower spending share in general and by income classes in 2016. First, a higher fraction of additional income may be used to repay debt because of the significantly higher loan burden of households in general and specifically because of the dynamic increase in new loans for housing purposes since 2009. Second, the counter-financing measures may lead to uncertainties related to the actual net-effect of the income tax reform 2015/2016. Third, the timing and pay of the tax relief was different in 2009, in tendency causing a higher consumer spending behaviour back then. Especially the first two points may also explain the relative higher decrease of interviewees' spending share in higher income classes.

The estimated average marginal propensity to consume based on our survey results amounts to approximately 0.46, whereby in tendency increasing from the lowest income class (0.42-0.43) to the highest income class (0.48-0.50). Although our average marginal propensity to consume across all income classes basically corresponds to those used to evaluate the income tax reform 2015/2016, our marginal propensities to consume by income classes fundamentally differ from those used in economic models. Whereas our calculated average marginal propensities to consume slightly increases by income classes, the marginal propensities to consume used in the analysis of the income tax reform decreases.

Summarising, we draw following two main conclusions:

First, our survey results with regard to the Austrian income tax reform 2015/2016 do not support the hypothesis that income tax policies aimed at lower-income classes have necessarily a greater stimulus effect on aggregate private demand. This corresponds to the findings of the survey concerning the Austrian income tax reform 2009 conducted by Kronberger (2010) using the same methodology. In fact, we find no evidence that low income individuals have a higher spending propensity than high income individuals. These empirical findings should be considered in the design of future fiscal policy measures as laid out in the government program 2017/2018 with regard to the elimination of fiscal drag in the income tax system as well as concerning future income tax reforms.

Second, the fact that our empirical-based calculated average marginal propensities to consume by income classes differ from those used in economic models analysing fiscal policies in Austria calls for further empirical research in this area. Evidence based marginal propensities to consume increase the quality of macroeconomic models as a decision making tool.

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Appendix

Selected questions from the income tax reform survey 2016

Haben Sie mitbekommen, dass im Vorjahr eine neue Steuerreform, die nun im Jahr 2016 wirksam wird, in Kraft getreten ist oder nicht?

Vorlesen! Nur eine Nennung möglich!

- Ja1
- Nein 2
- Nicht vorlesen:* Weiß nicht, keine Angabe3

Und haben Sie schon einen Mehrbetrag auf Ihrem Lohn- bzw. Gehaltszettel aufgrund der Steuerentlastung feststellen können oder nicht?

Vorlesen! Nur eine Nennung möglich!

- Ja1
- Nein 2
- Nicht vorlesen:* Weiß nicht, keine Angabe3

Durch die Steuerreform erhält man ja nun mehr Geld – entweder direkt mit dem Gehalt bzw. sonst bei der Lohn- oder Einkommenssteuererklärung am Jahresende. Was planen Sie mit dem zusätzlich verfügbaren Einkommen, wofür wird das zusätzliche Einkommen verwendet?

Vorlesen! Mehrfachnennungen möglich! Reihenfolge rotieren!

- Wird überwiegend sofort ausgegeben, konsumiert1
- Wird überwiegend gespart für eine größere Anschaffung noch dieses Jahr 2
- Wird überwiegend längerfristig auf die hohe Kante gelegt3
- Überwiegend um Kredite zurückzuzahlen 4
- Anderes, nämlich5
- Nicht vorlesen:* Weiß nicht, keine Angabe6

Dürfte ich Sie noch für erhebungstatistische Zwecke noch fragen, in welche der folgenden Einkommensgruppen Sie fallen, also wie viel Sie in etwa brutto pro Monat verdienen?

Vorlesen! Nur eine Nennung möglich!

- Bis 700 Euro1
- 701 bis 1.000 Euro2

1.001 bis 1.500 Euro	3
1.501 bis 2.000 Euro	4
2.001 bis 3.000 Euro	5
3.001 bis 4.000 Euro	6
4001 bis 6.000 Euro	7
Über 6.000 Euro	8
<i>Nicht vorlesen: Weiß nicht, keine Angabe</i>	9

Dürfte ich Sie fragen, wie Sie Ihr Einkommen einschätzen würden? Haben Sie ein – ?

Vorlesen! Nur eine Nennung möglich!

unteres Einkommen	1
mittleres Einkommen	2
höheres Einkommen	3
<i>Nicht vorlesen: Weiß nicht, keine Angabe</i>	4

BUNDESLAND

Oberösterreich	1	Steiermark	6
Salzburg	2	Kärnten	7
Niederösterreich	3	Tirol	8
Wien	4	Vorarlberg	9
Burgenland	5	Postleitzahl:	

WOHNORTGRÖSSE

Unter 2.000 Einw.	1	50.000-100.000 Einw.	5
2.000-5.000 Einw.	2	Über 100.000 (=Landes-	
5.000-10.000 Einw.	3	deshauptstadt	6
10.000-50.000 Einw.	4	Wien	7

GESCHLECHT

Männlich	1	Weiblich	2
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ALTER

15-24 Jahre	1	50-54 Jahre	6
25-29 Jahre	2	55-59 Jahre	7
30-39 Jahre	3	60-69 Jahre	8
40-44 Jahre	4	70 J. und älter	9
45-49 Jahre	5		

Welchen Schulabschluss haben Sie? (höchsten Schulabschluss)

Volksschule/Hauptschule	1
Weiterführende höhere Schule ohne Matura	2
Matura	3
Universität/Hochschule	4

BERUFSTELLUNG (eigene oder ehemalige bzw. des Ernährers)

Facharbeiter mit abgelegter Prüfung	1
Sonstiger Arbeiter	2
Landwirt	3

Leitender Angestellter.....	4
Nichtleitender Angestellter.....	5
Beamter des gehobenen Dienstes.....	6
Beamter des mittleren oder einfachen Dienstes	7
Inhaber oder Geschäftsführer von großen Firmen	8
Mittlere, selbständige Geschäftsleute	9
Kleine, selbständige Geschäftsleute, Handwerker.....	10
Freier Beruf	11

Wie viele Personen - Sie selber mitgerechnet - gehören zu diesem Haushalt?

- 1 / 2 / 3 / 4 / 5 Personen
- Mehr als 5 Personen.....6

Wie viele Personen haben in diesem Haushalt ein eigenes Einkommen?

- 1 / 2 / 3 / 4 / 5 Personen
- Mehr als 5 Personen.....6

Resulting marginal propensities to consume of methodologically similar surveys in an international context

Comparing the results of methodologically similar surveys in an international context (Table 7), we find that that the percentage fraction of interviewees who report spending and hence the average MPC – which we calculated following Leigh (2012) for all survey results based on the Shapiro-Slemrod approach – of the last income tax reforms in the respective countries varies significantly.

Table 7: Comparing survey results in different countries and years

Tax policies in different countries and years							
Use of tax reduction [in %]	US 2001*	US 2008*	US 2008*	Australia 2008/2009*	Austria 2008*	Austria 2016*	Austria 2016*
Spending	21.8	19.9	30	40.5	59	46	50
Saving	32	31.8	18	24	13	18	16
Paying off debt	46.2	48.2	49	35.5	4	19	11
Resulting average mpc	0.33-0.36	0.32-0.35	0.36-0.39	0.41-0.42	0.48-0.51	0.43-0.44	0.46

Australia 2008/2009: Leigh (2012); Austria 2008: Kronberger (2009); Austria 2016: Swisslife(2016); Austria 2016: Paper on hand

Source: Own illustration. Average marginal propensity to consume calculated according to Shapiro and Slemrod approach

As can be seen in Table 7, there exist not only variations in the Austrian MPC in different surveys, which have been explained, but also in the presented US-surveys. Whereas the results of Shapiro and Slemrod (2003 and 2009) are similar, the survey-results of the US Bureau of Labor Statistics (2009) are significantly higher. Leigh (2012) concluded that it is hard to say why such differences occur but at the same time gives a plausible answer. Referring to the concept of hyperbolic discounting, the author points out that when interviewees are asked about payments they have not received (as in Shapiro and Slemrod, 2009) they tend to say that they will save it. But when asked what they actually did with a payment (US Bureau of Labor Statistics, 2009), they are more likely to say that they spent it. Moreover, there is some evidence provided by Johnson et al. (2006) and Parker et al. (2011), that the short-term MPC⁸ (Shapiro and Slemrod, 2003 and 2009) is smaller than an long-term MPC⁹ (as conducted by US Bureau of Labor Statistics, 2009). However, Shapiro and Slemrod (2009) did not found such a correlation and highlight that such point estimates over time are accompanied by inaccuracies. Averaging out the MPC across the three US-survey, results in an average MPC between 0.34 and 0.37

⁸ Short-term MPC is here defined as calculated or asked MPC before getting or within the first three months after getting the tax rebate.

⁹ Long-term MPC is defined as calculated or asked MPC within a period of at least 6 to 9 month after getting the tax rebate.

for all income classes, since all three surveys cannot find significant differences in the spending behaviour between income classes.

Comparing the average MPC internationally, it seems that past tax reductions have been supported by the highest average MPC in Austria (0.48-0.5), followed by those in Australia (0.41-0.42) and the US (0.34-0.37). According to Kronberger (2010) one reason of the high average MPC in Austria may be the low indebtedness of Austrian households in relation to households in Australia and the US. Also, the households saving rate in Austria is lower than in Australia, the US however has an even lower saving rate (OECD, 2016). Moreover, Leigh (2012) suggests that the way how the tax relief is implemented plays a crucial role in the spending behaviour. In Australia, the tax relief was implemented through a bonus, which was directly transferred to the households, whereas in the US the tax relief was implemented via a tax rebate. In Austria the monthly additional income due to the tax reform is – similar to Australia – also directly transferred to the households. A bonus may be interpreted as windfall gain and more likely to be used for consumption than a tax rebate. Last but not least, the tax reduction in Austria can be seen as permanent, whereas the tax reliefs in Australia and the US were one-time payments and reductions, respectively.