Assumptions Future Calculator (Zukunftsrechner)

This document provides details about the *Future Calculator*, the tool participants were invited to use as part of the treatment, and which we also utilized to calculate the numbers provided in our informational video. The initial calculations and visualizations the tool is based on were designed in collaboration with the Zurcher Kantonalbank. We tailored it to teachers, basing the assumptions for wage development, career progress, and pension saving schemes on cantonal regulations. As is the case for many public employees, the teacher salary schedule is almost fully stipulated by law and leaves little room for discretion.

The tool is primarily designed to calculate the loss in total earnings, the reduction in monthly pension payments from the occupational pension scheme, the impact of missed promotions, and the total childcare costs when comparing full-time employment to specified levels of part-time employment. Importantly, for the full-time scenario, the tool calculates the total numbers if the woman had worked full-time her whole work-life and compares it to what would happen if she decided to reduce to the specified employment level at the provided age.

In order to perform the projections the user needs to provide the following input parameters:

- Marital status: Participants can choose between married/civil union and not married. This parameter only matters for the maximal pension payment from the first pillar of the pension scheme and does not play an important role for well-paid teachers.
- Age/year of birth: Participants year of birth to calculate (future) contribution paths.
- Year of birth of child(ren): The users can enter up to three children. The *Zukunft-srechner* uses this input to calculate childrens' age and based on this the childcare costs in the different institutions (childcare, kindergarten, school etc.) and state transfers.
- **Current Income**: This is the income currently earned. It is used to infer teachers' current years on the job and therefore to determine which income increases the person receives at which points in time. This also affects payments to the occupational pension scheme.
- Future changes in workload: Users can indicate between one and three changes in their employment level in the future by entering the age when they think their employment will change and the respective level in %.

Based on these parameters and the calculations, the tool provides the following main outputs:

1. Effects on total earnings: A figure visualizing the accumulation of financial losses relative to a full-time workload (i.e., lost gross income, missed promotions, foregone savings in the occupational pension scheme (BVG), and reduced contributions in the first pension pillar). This figure can be toggled to display the costs at any age starting from the employment reduction. Additionally, we present a bar chart comparing the total cumulated income in the full-time versus the part-time scenario, highlighting the percentage loss in total potential earnings.

- 2. Effects on monthly pension payments: A figure comparing the expected monthly old-age pension payments in the full-time and part-time scenarios, visualizing the loss in pension payments as a percentage.
- 3. Putting total lifetime costs in relation to childcare costs: A figure comparing the total accumulated financial loss with the costs of childcare, assuming full-time childcare until the child is 16, expressed as a percentage of the total loss.

Below we provide some more details and assumptions behind the calculations for the specific parts.

Earnings projection

The teacher's wage schedule is fully determined by regulations of the cantonal departments of education and mostly depends on years of job experience. We use this to infer the job experience of the used from the input field "current income". We then use this to project their future wage development.

In order to make sure that all teachers can be classified into one level, even if they, for example, enter a rounded wage, we define wage brackets, where the the mean between the next higher wage and the actual exact wage is the upper bound. The department of education differentiates between automatic wage increases (or *Lohnstufenehrhöhung*) and individual wage increases. In case of automatic wage increases, the teacher receives a higher wage after a prespecified amount of time independent of employment level and performance. The first ten years of experience the wage increases between 2-4% per year, it continues to increase by 1 - 1.5% every two years for the following 20 years. In case of individual wage increases, the department of education sets a maximum number of teachers that can be promoted. For the tool, we directly implement automatic wage increases. We split the individual wage increases over two years, as their timing is less clear cut.

Career Progress and Promotions

Teachers are rarely promoted if they stick to their career path (and do not become principals or start working for the department of education). As explained above, wages mostly grow automatically due to job experience (*Lohnstufen*) and not as a result of specific achievement at the discretion of a superior. The only exception to this rule is the promotion to so-called *Lohnüberstufen*. If a teacher reached the first wage maximum and received good evaluation throughout the career she can be once more promoted. We assume that teachers who had a workload of at least 70% for more than half of their career receive this promotion after 20 years of job experience.

Pension payment projections

Pension payments from first pillar (AHV)– The AHV is the first pillar of the Swiss pension system. Every Swiss citizen from age 18 (20 if not employed before 18) needs to make

contributions. We assume that contributions start at age 18. It mostly covers basic needs and has a maximum pension payment that most teachers will reach even at low workloads. For the population of teachers, the most relevant parameter in this pillar is the marital status: Single women receive a higher payment than married women. To account for inflation the prior wages need to be adapted to the current wage level which is done with the *Aufwertungsfaktor* or revalorisation factor. (current revalorisation factors can be found here).

Pension payments from second pillar (occupational pension scheme)– The occupational pension scheme is the second pillar of the Swiss pension system with employee and employer contributions. It is meant to sustain the standard of living and contributions heavily depend on income levels throughout a work life. Generally, the percentage of the income contributed to the pension increase with age. Contributions are calculated based on the so called coordinated wage, which is determined by the government *Koordinationsabzug*. In 2022 the *Koordinationsabzug* was 25.095 CHF. The coordinated wage is the difference between the gross wage and the *Koordinationsabzug*.

For the pension provider of our teacher sample the employer's contribution as share of the wage is fixed. Teachers can choose between three different plans (a basic, standard, and top plan), which differ in terms of the percentage of the wage teachers pay into the fund. We assume that teachers choose the standard version of the plan which is moderately more generous than the minimum required by law (German comparison of the plans can be found here. We assume that teachers start making contributions from age 25 on.

The actually received (monthly) pension payment from the second pillar is determined by a so-called *Umwandlunsgssatz*, which is in principle stipulated by law. The *Umwandlunsgssatz* determines which percentage of the obligatory total pension savings are paid out each year. In our tool we assume 5%, the *Umwandlungssatz* that is in place at the time of the study. We further assume a retirement age of 64 for women.

Childcare Cost

In order to contextualize the long-term financial costs, we calculate the total childcare expenses until the child (or children) reach 16 years, assuming full-time care. This implies an upper bound of childcare costs, considering that in many cases, children are not in institutional childcare fulltime.

In Zurich, childcare encompasses four types: early childcare (ages 1-4), obligatory kindergarten (ages 5-6), primary school (ages 7-12), and secondary school (ages 13-15). From kindergarten onward, typically only covering mornings, parents requiring care beyond school hours need to pay for after-school programs. Table 1 outlines the assumed payment schedule for childcare per year, dependent on age and workload, based on 2022 public institution rates in the city of Zurich. The tool also factors in weekends and holidays (25 days for mothers, typical school breaks for children). With 250 working days per year and 65 days of school vacation for children, we assume teachers work during holidays for preparation and administrative tasks, although with more flexibility. The visualization utilizes the 100% workload scenario.

	Kita (0-4 years)	Kindergarten (5-6 years)	Primary School (7-12 years)	Secondary School (13-15 years)
100%	27.000	17.400	18.505	5.280
90%	24.360	15.690	16.691	4.769
80%	21.600	13.920	14.804	4.224
70%	18.960	12.210	12.990	13.730
60%	16.200	10.440	11.103	3.168
50%	13.560	8.730	9.289	2.657
40%	10.800	6.960	7.402	2.112
30%	8.160	5.250	5.588	1.601
20%	5.400	3.480	3.710	1.056
10%	2.760	1.770	1.887	545

Table 1: Childcare Cost per Year in CHF as a Function of Child Age and Level of Employment