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Design and Evaluation of the Finnish Basic Income Experiment

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Design and Evaluation of the Finnish Basic Income Experiment

Abstract

The Finnish basic income experiment was an ambitious effort to study basic income in a Nordic welfare state. This paper describes the planning, implementation and scientific evaluation of the experiment. The randomized treatment group was paid a guaranteed monthly income, which had no impact on disposable income while a person was unemployed but provided a substantial increase in work incentives. We extend previous evaluations by examining the heterogeneity of incentive changes and employment responses across households. Our results reveal improvements in employment only for couples with children, providing an interesting contrast to other in-work credit programs.

JEL-Codes: C930, H550, I380, J650.

Keywords: employment, field experiment, social insurance, unemployment benefits.

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1 Introduction

A universal basic income is an unconditional cash transfer that a government pays periodically to everyone. As a social policy, a basic income involves some tempting properties. Without means-testing, cash transfers require a minimum amount of bureaucracy. Social security provided by a single cash transfer also allows a government to avoid extensive income traps. The tapering of basic income occurs using tax parameters, and a simple benefit system can be accommodated with a linear tax schedule. However, there is the question of affordability. The acceptability of a universal basic income model will inevitably be reduced if a high tax rate is required to finance an adequate standard of living for everyone.

Finland was the first Western country to put the employment effects of a basic income to a rigorous test by organizing a randomized experiment. Initially, the process had high scientific ambitions of exploring the potential of a basic income to transform a typical Nordic social security system. During the planning process, the experiment was compromised and scaled down, but the key features – randomization and compulsory participation – were retained amid these changes. Accordingly, the Finnish basic income experiment has great potential to provide reliable empirical estimates to better understand the employment responses of basic income as well as other tax-benefit policies targeting similar populations.

The two-year experiment that was ultimately implemented targeted a group of unemployed people, partially replacing their social security by a basic income. The model was far too expensive to be implemented as a nationwide policy, because it was not possible to adjust tax parameters within the timetable available for planning. The basic income provided in the experiment replaced minimum unemployment benefits for those who were out of work, and constituted a large in-work benefit for those who were employed. This resulted in a substantial increase in work incentives, which was expected to improve employment among basic income recipients. However, the evaluation of the experiment by Verho et al. (2022) shows that no noticeable employment effects materialized.

This paper describes the evolution of the Finnish basic income experiment from a political

initiative to the actual experiment and its evaluation, the particular focus being on how different family types responded to the changes in their work incentives. In Section 2, we discuss the planning process of the experiment from a government tender to the final bill passed in the Finnish Parliament.¹ We continue by describing the details of the implementation of the basic income and the possibility to claim regular unemployment benefits at the same time with the basic income. In such cases, the basic income was deducted from the net value of regular benefits. The microsimulation analysis in Section 2 shows that the basic income decreased participation tax rates for an unemployed person accepting a low-paying full-time job by 23 percentage points. We then go on to briefly discuss the consequences of the government deciding to implement an unemployment benefit reform in the middle of the experiment. This reform tightened the unemployment benefit rules, which impacted the analysis groups of the experiment asymmetrically and complicated the interpretation of the second-year results of the experiment.

Section 3 provides new results that extend our understanding of the modest employment results reported in previous evaluations of the experiment. We examine heterogeneous employment effects across different types of households, with the analysis revealing that only couples with children responded to an improvement in monetary incentives. The employment rates of childless couples and single parents in the treatment group evolved in a manner fairly similar to that seen in the households in the control group. These findings stand in contrast to evaluations of the Earned Income Tax Credit in the U.S. and the Self Sufficiency Project experiment in Canada, which reported positive employment results for single parents (Eissa and Liebman 1996; Meyer 2010; Card and Hyslop 2005) but not for married couples (Eissa and Hoynes 2004). We attribute these differences mainly to the level of labor income required to reach the maximum amount of in-work credit. This might have been too high for many families with single parents in the basic income experiment. Section 4 provides concluding remarks on the

¹These events have been documented in the planning reports of the experiment (Kela 2016; Kangas et al. 2016) as well as by Kangas et al. (2021). The authors of the present paper were also members of the research consortium that was tasked with planning and eventually evaluating the experiment.

research.

2 The experiment

The Finnish government had no particular model in mind when it announced a tender for organizing an experiment on basic income. As basic income can be implemented in different ways depending on to the degree to which it aims to replace existing social benefits, the tender specified three potential models: i) pure basic income, ii) partial basic income, and iii) negative income tax.

A pure basic income replaces all existing social security with a single basic income payment made to everyone. The amount of basic income is adjusted in different life situations through taxation. Accordingly, a pure basic income forms a complete social security system that is simple and bureaucratically light. The drawback in a European context, however, is that the replacement of all, or a large part of, earnings-related social benefits would necessarily lead to very high levels of basic income, unless one were willing to reduce the level of benefits. This, in turn, would require high income taxes to finance basic income payments. Partly for these reasons, models featuring a partial basic income were considered more feasible for the intended experiment.

A negative income tax is an alternative to a basic income model. It can provide a tax-benefit system that is mathematically equivalent to a pure basic income model, and thus shares similar benefits and drawbacks. An additional difficulty in implementing a negative income tax arises from the need to accommodate an annual tax period with social benefits that are adjusted on a monthly basis. Ultimately, the planning of the Finnish experiment focused on partial basic income models that would replace minimum level social benefits while leaving earnings-related benefits untouched.

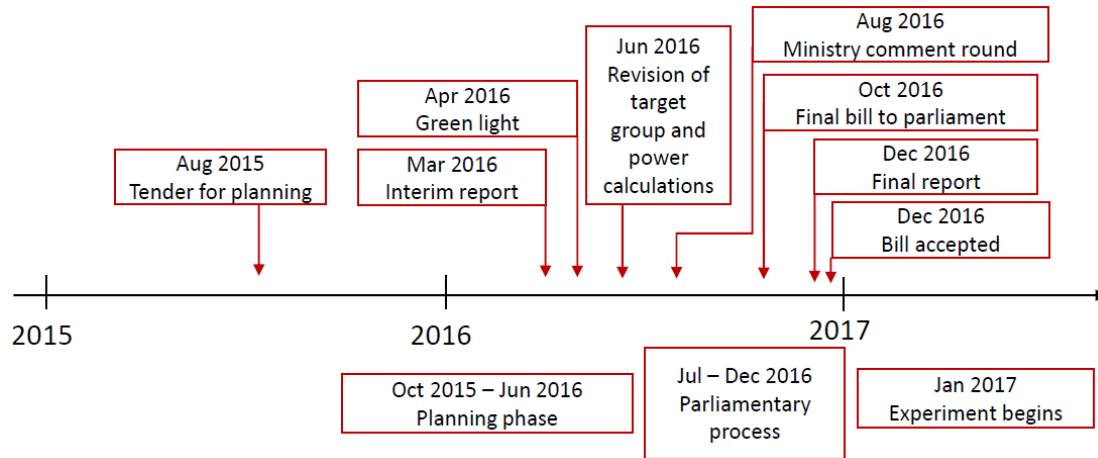


Figure 1: Planning of the basic income experiment.

2.1 Planning

The legislation for a large-scale experiment involving social security requires political acceptance, and the bill will require a majority in Parliament to be passed. Traditionally, the idea of paying a basic income has lacked substantial political support in Finland, the main advocates being the relatively small Green League and Left Alliance. The major parties have been less enthusiastic about social benefits that are paid irrespective of job search efforts. This changed in 2015, an election year, when the Centre Party included a regional basic income experiment in its platform. After becoming the largest party in Parliament, the party formed a center-right government, which included a basic income experiment in its program for the next four years. The government reserved €20 million for the experiment in its first budget proposal for the years 2017–18. The prime minister’s office launched a tender for designing of the experiment in August 2015. The original timetable stated that the government would determine the ultimate content and present a proposal to Parliament in December 2016. Figure 1 presents a timeline of the key events in the planning process.

A research consortium was selected to carry out the planning of the experiment, and it submitted its interim report in the end of March 2016 (Kela 2016). The planning group ended up proposing a partial basic income model targeting low-income people and featuring several treat-

ment arms consisting of different basic income payments and income tax rates. The variation across treatment arms would make it possible to estimate labor supply elasticities, which could then be utilized should plans be made to implement a basic income nationwide or in the design of other tax-benefit policies.

After the interim report was published, decisions on the experiment started to proceed quickly. In mid-April 2016, the prime minister gave the green light to carry out the experiment. Two weeks later, the group of ministers responsible for the project, accepting the report's recommendations, decided that the experiment had to be based on randomization and compulsory participation. At the same time, the original timetable was also drastically tightened. Instead of agreeing on the contents of the experiment in December, the first draft of the proposal for Parliament was rescheduled for submission at the end of June. The government proposal was then sent out for comments by the Ministry of Social Affairs and Health on 25 August 2016, and the bill on the experiment was introduced in Parliament on 20 October 2016. Eventually – after everything was already decided – the planning group submitted its final report (Kangas et al. 2016), in which it was to have finalized the parameters of experiment.

The planning group and the Ministry of Social Affairs and Health worked together in drafting the bill. The setting-up of a completely new social benefit on the fly that would function with the existing and complicated tax-benefit system turned out to be a massive task. The legislative drafting had to take into account all interdependencies in the Finnish benefit system as well as EU legislation and to specify how the new benefit would replace the existing ones. During the drafting process, the Tax Administration withdrew from the experiment. It deemed the time-table too tight and resources too scanty to make changes in the income tax rates of the treatment group feasible. As a result, it was no longer possible to tax away basic income at higher income levels. Given the budget of €20 million, employed persons had to be excluded from the pool of potential participants. This was done to increase the number of treated units, as the net cost of a basic income was set to zero for those treated persons who claimed unemployed benefits during the experiment.

The planning group prepared new power calculations for a study population consisting of unemployed persons on minimum benefits to ensure that the experiment had enough power to detect anticipated employment changes. This particular population was appealing for another reason as well: The Social Insurance Institute (SII) already had information on their bank accounts as well as the necessary infrastructure to make basic income payments. Then again, the SII perhaps anticipated the increased resources needed to provide guidance for basic income recipients and announced it could only handle payments for 2,000 individuals, a limitation that ultimately determined the size of the treatment group. The power calculations suggested that the experiment had sufficient power if a change in employment could be expected to be close to 10% relative to the control group. The improvement in monetary incentives was considered large enough that a change in employment of this magnitude might be realistic.

The final hurdle for the basic income experiment to clear was the parliamentary process. Beforehand it was unclear what stance the Constitutional Law Committee, which examines bills to ensure their constitutionality, would take on the experiment. The Constitution requires equality before the law; that is, no one may be treated differently from other persons without an acceptable reason. The law also has to be clear and precise to avoid any arbitrariness in its application. With regard to these issues, the basic income experiment had no precedents, as the Committee had not previously issued statements on experiments based on randomization. However, the Committee had stated that it is possible to deviate somewhat from the requirement of equality in the case of regional pilots provided that the pilot is set out in an Act, limited in duration, and provides an evaluation of impacts. After hearing several constitutional law experts, the Committee determined that the bill on basic income had an acceptable reason to deviate from the constitutional provision on equality in the interest of providing reliable results on the effects of basic income on employment. The question of mandatory participation was probably somewhat easier, because the basis for requiring participation in the basic income experiment was essentially the same as that applied in the case of regional pilots. In a last consideration, the Committee decided that randomization was written into the bill in a way that

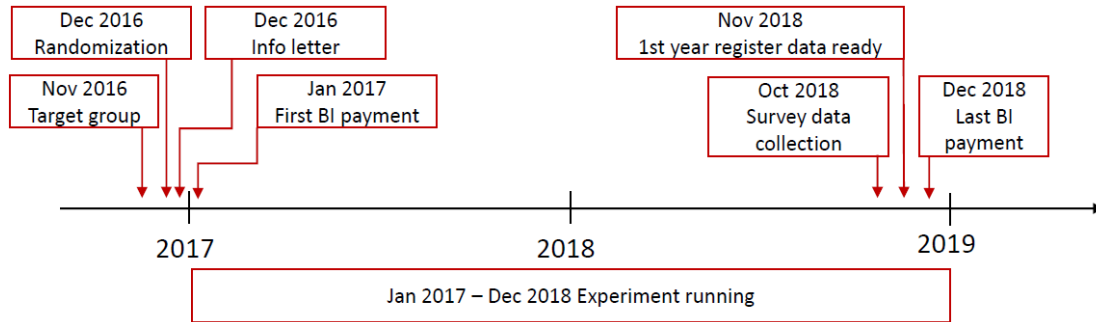


Figure 2: Implementation of the basic income experiment.

was precise and ensured that each member of the target population had the same probability of being selected. Following this determination, the Committee gave the experiment the green light.

2.2 Implementation

The bill for the basic income experiment specified a target group that consisted of persons who were between 25 and 58 years of age and were receiving minimum unemployment benefits paid by the Social Insurance institute (SII) in November 2016. Persons under 25 were excluded so that the experiment would not interfere with their educational plans; persons over 58 were considered too close to retirement age. In addition, persons who were temporarily laid off or taking care of their children at home were excluded from the target group. The number of benefit recipients who fulfilled the inclusion criteria was 175,222. Figure 2 illustrates the main stages in the implementation of the experiment.

The SII published the SAS code for randomization in the beginning of December 2016. The purpose doing so was to convince everyone that the experiment gave all persons in the target group exactly the same probability of being selected. The actual randomization was carried out on 15 December 2016. At this point no one had an opportunity to manipulate the randomization outcome, and none of the participants was informed of their treatment status.

The selected persons received a letter immediately after the bill was passed on 29 December

Table 1: Basic income in the Finnish experiment.

- | |
|---|
| <ul style="list-style-type: none">- Monthly €560 (\$631) guaranteed income paid by the Social Insurance Institution of Finland- Replaced minimum unemployment benefits with net value of €558- Unconditional benefit without any obligations that are set to unemployed job-seekers by the public employment services- Nontaxable benefit that does not taper with earnings, providing a substantial increase in work incentives- Paid for 24 months from January 2017 to December 2018 (total of €13,440)- Did not cover benefit supplements paid to i) persons with dependent children, ii) participants in active labor market programs- Missing benefit supplements provided financial incentives to claim regular unemployment benefits when out of work |
|---|

2016. Recipients were informed that they had been selected to receive a monthly basic income of €560, which was tax-exempt and would replace their regular unemployment benefits. The letter also stated explicitly that the recipient would keep receiving basic income payments for two years even if he or she became employed. The basic income did not include child supplements, but treated persons were given a possibility to claim any unemployment benefits they were entitled to. In these cases, treated persons received their basic income and any extra benefits exceeding the net value of the basic income. The latter part was paid as unemployment benefits, meaning that a treated person had to claim unemployment benefits to receive benefit supplements. A summary of this new benefit is provided in Table 1.

The SII paid the basic income on the second banking day of every month, with the exception of the first payment, which was paid on 9 January 2016. As unemployment benefits are paid retroactively, the treatment group received their regular unemployment benefits for December during the first month of the experiment. These were paid on their regular payment day, determined by the day when the first claim for unemployment benefits was filed. Given the extra payment, together with the information letter and media coverage, it seems unlikely that the treatment group was unaware, at least in any great numbers, of its receiving a basic income instead of unemployment benefits.

Participation in the experiment was mandatory, but basic income payments were suspended

if a person moved abroad, became incarcerated, started military service, claimed and began receiving benefits for purposes such as retirement, studying, or taking care of children at home. If a participant no longer received benefits in one of the prohibited categories, he or she returned to the experiment and started to receive basic income payments again. The number of suspended basic income payments remained modest during the experiment, totaling 94 cases in the last month of the experiment.

2.3 Changes in work incentives

Tax-benefit system

The effective marginal tax rates in Finland are strongly affected by tapering of social benefits, whereas income taxes play a lesser role in the lower part of the income distribution. For low-income people, the municipal tax accounts for most of the income tax they pay. The lowest bracket of the progressive state tax begins effectively at an annual income of €34,270, which was taxed at rate of 6.25% in 2017. The municipal tax is a flat-rate tax, with an average rate of 19.9% in 2017. However, a range of tax allowances make the municipal tax schedule progressive in practice. The social security contributions required of taxpayers add a further 7.7 percentage points to the tax rate.

The basic income experiment targeted recipients of minimum unemployment benefits paid by the SII. There are two types of minimum unemployment benefits. Unemployed workers who have worked at least 6 months during the previous 28 months are eligible for the basic unemployment benefit, which can be paid for up to 400 weekdays. Unemployed persons who do not meet this employment criterion or who have reached the maximum payment period of another unemployment benefit receive a means-tested benefit. Unemployment benefits are taxable income. In 2017, both forms of minimum unemployment benefits paid by the SII were €32.40 per weekday, amounting to a total of €697 per month. Parents with children under 18 years of age are eligible for child supplements. The effective marginal tax rates are strongly affected by the fact that unemployment benefits are adjusted for job-seekers who engage in part-time

or temporary employment. Every €1 in monthly earnings above €300 reduces unemployment benefits by €0.50, whereby benefits will taper off fully at monthly earnings of €1700 for a job-seeker with no children.

Most recipients of minimum unemployment benefits also receive other social benefits paid by the SII. The housing benefit is paid to low-income households and covers a maximum of 80% of approved housing costs. Housing benefits are reduced as household income grows, in much the same way as unemployment benefits. Every €1 increase in monthly income above €300 reduces benefits by €0.42. Social assistance is another important benefit affecting the effective marginal tax rates, although it only applies to households in the lowest part of the income distribution. It is paid as a last resort after people have applied for all other available benefits. Due to means testing, every €1 increase in a household's monthly income is fully deducted from any social assistance granted.

Simulated changes in work incentives

The basic income was counted in housing benefit and social assistance calculations at an amount corresponding to minimum unemployment benefits. In addition, when calculating changes in disposable income for low-income people in a welfare system, one needs to take into account other interdependencies between a large number of social benefits as well as progressive income taxation. To accommodate this complexity, we use Statistics Finland's tax-benefit model SISU to illustrate the effective tax rates and to analyze the changes in work incentives induced by the basic income experiment.

Figure 3 presents how simulated disposable income evolves as a function of labor earnings for four household types. These stylized households live in a small town with a rent equal to the maximum accepted housing costs. In the case of the married couples, the disposable income is a function of earnings for one person, with the spouse assumed to remain unemployed. The two households with children are assumed to receive the child benefit for one child. The single parents also receive child support, paid by the parents responsible for child maintenance. Wages

from part-time or temporary employment are allowed, and thus the unemployed persons in the households are eligible for adjusted unemployment benefits.

The dotted line in Figure 3 shows disposable income for the control group of the experiment, that is, those in the regular Finnish tax-benefit system. The households with two adults have substantially higher disposable incomes when one member is out of work compared to the single-adult households. Having a child increases disposable income, especially in the case of single parents; however, this is mainly explained by reliance on social assistance, which entails higher marginal tax rates when compared to the other family types. The joint tapering of unemployment and housing benefits means that disposable incomes will start to increase at a higher rate only after the two adults in the household stop receiving both types of benefits.

The solid line in Figure 3 shows disposable incomes for similar households in the treatment group. Because the basic income was deducted from the net value of other benefits, the treatment did not change disposable income at very low levels of monthly labor earnings. After €200 to €500 in earnings, depending on the household type, disposable income becomes higher in the treatment group. The difference grows until it reaches €560, which is the full value of the basic income. This takes place at wage levels from €1700 to €2500 per month depending on the number of adults in the household and whether there is a child living there.

The microsimulation model also allows the calculation of disposable income using observed individual characteristics. Table 2 presents participation tax rates (PTRs) for different family types, which are calculated by taking into account the entire tax-benefit system and based on actual use of benefits and household income observed in the SII microdata. The PTRs give the share of income paid as taxes or lost due to benefit tapering when a full-time unemployed person is employed at different wage levels. The model assumes that the monthly earnings level remains constant over the year and persons apply for all social benefits to which they are entitled to.

Table 2 reports PTRs for two different levels of monthly earnings. The higher level of €2000 corresponds to the median monthly wage for low-paid full-time jobs reported in earn-

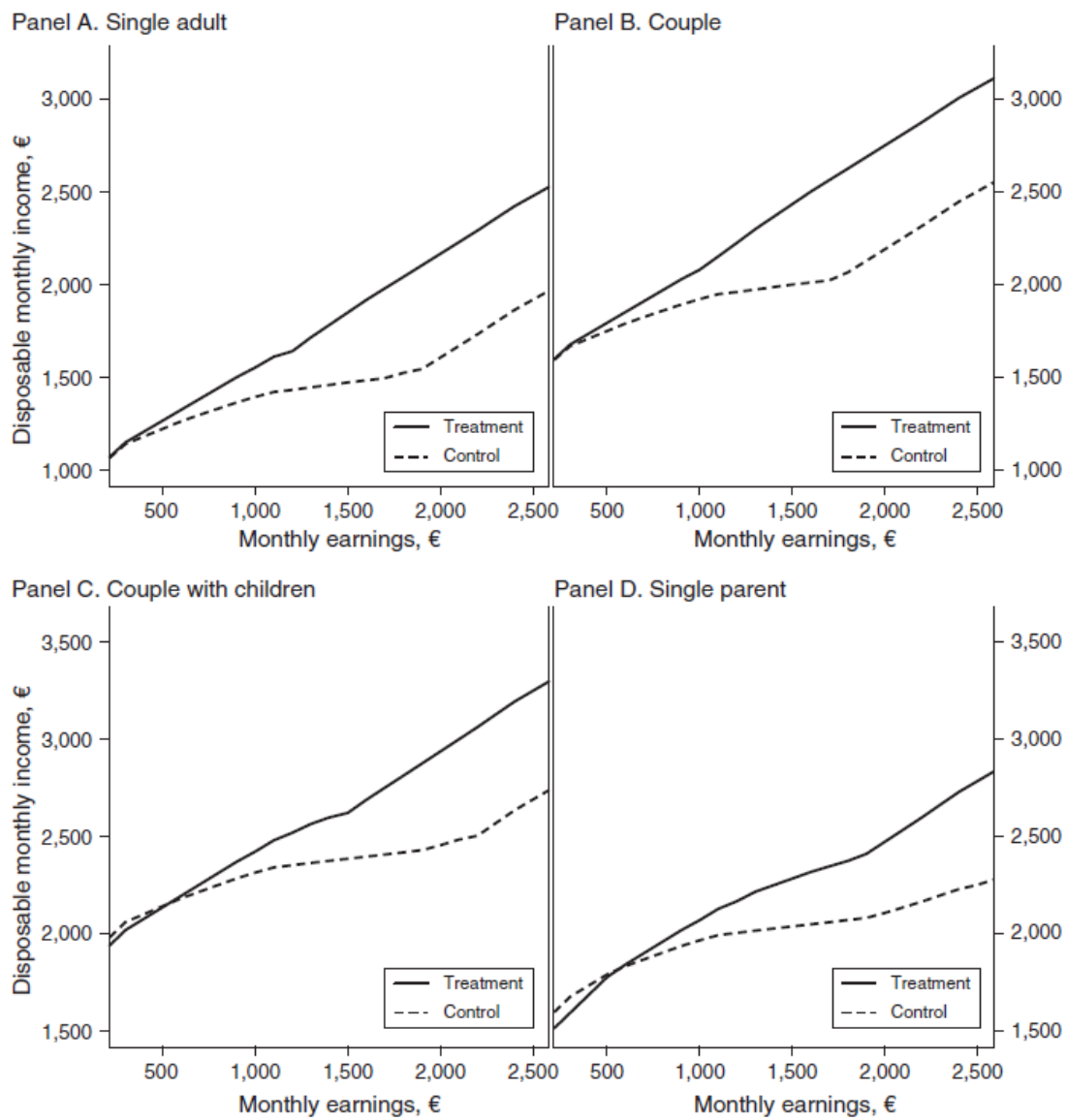


Figure 3: Change in the work incentives for stylized households. Source: Verho et al. (2022).

Table 2: Participation tax rates by family type. Average participation tax rates for monthly labor earnings of €1,000 and €2,000.

	N	Earnings €1,000/mo.		Earnings €2,000/mo.	
		Treated (%)	Controls (%)	Treated (%)	Controls (%)
Single adult	52,665	39.0	54.2	39.8	65.7
Couple	23,305	28.5	46.6	32.0	58.1
Couple with children	33,983	46.4	52.8	47.2	66.3
Adult with children	22,270	51.8	58.2	52.4	71.6
All	132,223	41.2	53.2	42.5	65.5

Note: Tax rates are simulated for the target population using Statistics Finland's SISU microsimulation model based on the observed benefit eligibility at the end of 2016. The baseline is calculated for full-time unemployment benefit recipients without labor earnings in November.

ings statistics (Structure of Earnings, Statistics Finland). These jobs include work in cleaning, hairdressing and similar occupations (SOC categories 37-2010 and 39-5000). Low-earning service, basic construction and warehouse workers are also paid around €2000 per month, but their median income is higher. The lower monthly earnings level of €1000 represents unemployed workers who may be unable to find full-time employment or may prefer to work part-time.

The first column of Table 2 shows the number of people according to family type.² The last four columns report the PTRs for both analysis groups at the two levels of earnings. When examining the PTRs at the wage level of €2000, the highest PTR in the control group is reported for single adults with dependent children (including both single parents and adults responsible for child maintenance). If they received basic income, their average PTR would decrease from 71.6% to 52.4%. The lowest PTR in the control group is observed for childless couples. For them, the experiment lowered the average PTR from 58.1% to 32.0%. At the population level the experiment reduced PTRs by 23.0 percentage points at a monthly wage level of €2000. In part-time jobs, the PTRs are over 10 percentage points lower than in full-time work in the control group, with the experiment having a smaller impact on PTRs. On average, at the wage level of €1000, the PTR decreased by 12.0 percentage points, from 53.2% to 41.2%.

²Note that the PTR calculation is not available for the full analysis population because some of the persons in it were not claiming unemployed benefits full time at the time of randomization. In addition, due to data limitations the use of social assistance is that observed in January 2017.

Table 2 reveals that the experiment improved monetary incentives to work among all family types, with the largest improvements occurring in childless households. Single persons had the strongest improvements in work incentives and at lower wage levels than other types of households. Couples with children are eligible for larger social benefits than single-person households due to the higher level of accepted rental costs and the inclusion of child supplements in unemployment benefits. In their case, the change in work incentives is smaller, and they need to have higher wage levels than those living alone to get the full €560 increase in disposable income. For couples without children, the change in work incentives was larger than for couples with children but smaller than for single-person households. Finally, the change in monetary incentives was smallest for single-adult households with dependent children, as such households are commonly eligible for social assistance.

2.4 The 2018 activation reform

The government program of the center-right government set general aims of improving employment incentives and reducing structural unemployment. One measure introduced to these ends was an unemployment benefit reform, which came into force on 1 January 2018. The parliamentary debate on the bill was widely covered in the media and the reform was vocally opposed. The reform tightened the eligibility criteria for unemployment benefits: if an unemployed person had not participated in active labor market programs for at least five days or worked for at least 18 hours during a three-month period, his or her benefits were cut by 4.65% for the next three-month period. In monetary terms, this corresponded to a €32 reduction in monthly minimum unemployment benefits. The reform was strongly opposed by the labor unions, prompting demonstrations and wide media coverage focusing on work incentives. In the light of these reactions, it is likely that the reform loomed larger in people's minds than was warranted by the relatively small sanction it imposed.

The logic behind the 2018 reform was totally the opposite of that underpinning the basic income experiment. The reform made part of a person's unemployment benefits conditional on

specified activities, whereas the experiment provided a basic income irrespective of a person's job-seeking efforts. As such, the 2018 reform did not invalidate the randomized research setting of the basic income experiment; however, it complicated the interpretation of employment effects during the second year of the experiment by affecting its control and treatment groups asymmetrically. All control group members faced a reduction in their unemployment benefits if they failed to meet the new requirements. Those receiving the basic income were affected only if they decided to apply for unemployment benefits, and even in that case the reform had no effect on the basic income payment. The benefit reduction applied only to any supplementary unemployed benefits a person might receive in excess of the basic income.

3 Evaluation of the experiment

The main aim of the experiment was to evaluate the employment effects of the basic income model. The evaluation was based on register data collected from different administrative sources, and it was designed before the analysis data were revealed to the researchers and registered in the pre-analysis plan (AEARCTR-0002095) in May 2017.³ The pre-analysis plan of the experiment specified the primary outcome as the sum of days in employment between October 2017 and November 2018. The logic behind this definition was to analyze the cumulative impact of the experiment without possible frictions in the participants' behavioral response at the beginning of the experiment. This idea was effectively ruined by the introduction of the unemployment benefit reform in 2018, whose impacts became confounded with the results for the second year of the experiment. Consequently, the employment responses were analyzed for each year separately.

³Finnish administrative registers can be linked using unique personal identifiers. The experiment register is maintained by the Social Insurance Institution (SII) containing the treatment status for the analysis group with information on basic income payments. The SII also maintains extensive registers on the claims for and payments of social assistance, housing benefits and unemployment benefits. The evaluation data were supplemented by income data collected by the Tax Administration, and information on labor market status from the registers of the Finnish Centre for Pensions and the Ministry of Economic Affairs and Employment. Basic demographic information was obtained from the registers of the Population Register Centre.

Verho et al. (2022) report that the estimated employment effect of the first year was insignificant. They calculate a point estimate of 1.5 days, with a 95% confidence interval of -2.3–5.4. In the second year, the estimated effect is a significant increase of 6.6 days, with a 95% confidence interval of 1.3–11.9. Relative to the employment levels in the control group, these estimates translate into 3.1% and 8.6% increases in the number of employment days. Hämäläinen et al. (2020) report the effect on the primary outcome following the pre-analysis plan. The estimated effect is 6.05, which is slightly lower than the estimate for the second year.

3.1 Heterogeneous employment responses

The basic income experiment can be expected to lead to heterogeneous responses because of variation in opportunities among different subgroups and in work incentives. Table 3 confirms that background characteristics vary notably between the different types of families. As the analysis population consisted of persons who were unemployed in November 2016, the number of days in unemployment is high, and in employment low, in all subgroups. Consequently, their annual earnings are also low. A comparison between family types suggests that during the year before the experiment started, the single-person households had the weakest labor market position, and the couples with children the strongest.

More differences emerge between households when examining background characteristics. Single persons and couples without children fall into the youngest and oldest age brackets, whereas those in households with children are typically between 35 and 44 years of age. Single persons are predominantly men. Couples tend to have more education, almost 70% of them having at least secondary education, than other family types. At the other end of the spectrum, around 40% of single adults with children have only a primary education. All in all, background characteristics suggest that single-adult households have more characteristics typically associated with poor employment prospects than households with two adults, particularly couples with children.

Randomization should provide balanced analysis groups but some differences can be ex-

Table 3: Summary statistics for the analysis groups.

	Single adult		Couple		Couple with children		Adult with children	
	Treated	Controls	Treated	Controls	Treated	Controls	Treated	Controls
Past outcomes in 2016								
Days in employment	20.9	20.0	22.4	25.9	29.3	28.3	23.4	24.3
Days on unemployment benefit	293.4	293.0	283.1	278.6	270.8	275.0	292.9	290.4
Earnings (€)	1,700	1,684	1,898	2,034	2,204	2,116	1,664	1,906
Background characteristics (%)								
Women	35.7	33.1	55.1	57.1	54.1	56.8	59.0	56.8
Age								
25–34	38.2	39.9	30.7	30.7	29.9	33.5	31.1	31.1
35–44	19.2	19.5	14.0	15.6	43.8	39.8	36.2	38.2
45–59	42.6	40.7	55.3	53.7	26.3	26.7	32.7	30.7
Education								
Basic	31.4	31.3	28.2	30.2	30.5	35.2	38.8	41.4
Secondary	46.5	49.1	46.3	43.5	45.3	42.5	49.7	46.8
Tertiary	22.1	19.6	25.5	26.4	24.2	22.3	11.5	11.8
Joint F -test, p -value		0.55		0.88		0.15		0.85
Observations	791	68,435	365	31,146	532	45,055	312	28,586

Note: The analysis group “adult with children” includes single parents and adults with dependent children. Joint F -tests are used to test the difference between the treatment and control group for each family type using all the variables in the table.

pected to arise when exploring subgroups. Joint tests for differences between the treatment and control groups in Table 3 show that the analysis groups are generally balanced, and there are indeed some differences in background characteristics, especially for couples with children. However, these differences are not a cause for concern since they can be controlled for in regression models

Figure 4 depicts the employment effects by family type. The patterns of monthly employment rates show that responses do not align with the changes in work incentives discussed in Section 2.3. The single-person households had the largest improvements in monetary incentives, but they show no employment effects, as all monthly employment shares of the treatment group are very similar to those of the control group. This is to be contrasted with couples with children, whose change in monetary incentives was considerably smaller than that of single-person households. Their employment response is consistently positive, especially during the second year of the experiment. The remaining groups, childless couples and adults with children, show small and less consistent responses.

Next, we analyze the effect of the basic income on days in employment. We estimate the following OLS model separately for different family types and analysis years:

$$Y_i = \alpha + X_i' \beta + \delta Tr_i + \varepsilon_i,$$

where Y_i is the number of employment days, Tr_i is the treatment group indicator, X_i is a vector of control variables, and ε_i is the error term. We control for a range of background characteristics observed in 2016 to improve the precision of the estimates. Following the model specification in Verho et al. (2022), the controlled variables are: unemployment benefit type, gender, age, language, region type, province (NUTS 2), level and field of education, disability indicator, employment, earnings, unemployment benefits, and housing benefits. In the main regressions including all individuals, family type is also controlled for. All controlled variables are categorical, and the estimated standard errors are robust to heteroskedasticity.

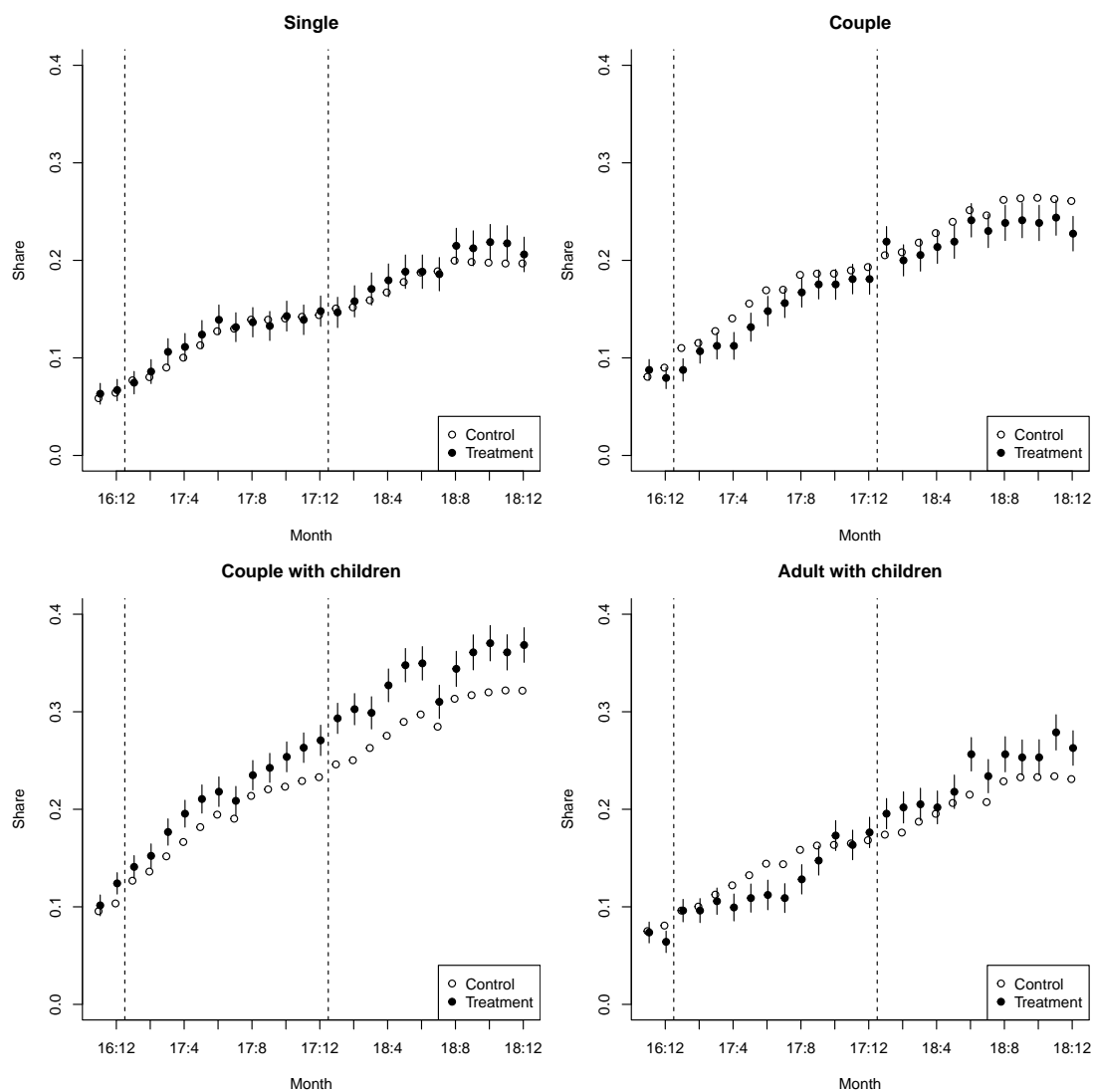


Figure 4: Employment by family type. Vertical bars denote 95% confidence intervals for the treatment groups.

Table 4: Treatment effect of basic income on days in employment by family type.

	2017				2018				N treated
	Control mean	Estimate	SE	<i>p</i> -value	Control mean	Estimate	SE	<i>p</i> -value	
Main	49.06	1.54	1.98	0.44	77.34	6.63	2.71	0.01	2,000
Family type									
Single adult	39.56	1.06	2.78	0.70	62.19	4.49	3.84	0.24	791
Couple	53.54	-3.91	4.56	0.39	83.20	-4.07	6.31	0.52	365
Couple with children	62.27	7.68	4.56	0.09	99.80	13.26	6.02	0.03	532
Adult with children	46.10	-2.98	4.65	0.52	71.83	10.33	6.67	0.12	312

Note: The regression models include control variables observed in 2016. Standard errors are heteroskedasticity-robust.

The results reported in Table 4 show the average of days in employment in the control group in the first column, and the parameter estimates for the treatment indicators and their statistical significance in the next columns. The estimated effects are well in line with the incidences of employment presented in Figure 4. There are no signs of employment responses among single persons or couples without children. Couples with children show a marginally significant improvement of 7.68 days in employment during the first year. During the second year, the employment response increases to 13.26 days with a *p*-value of 0.03. Accordingly, treated persons in this family type were the most likely to respond positively to an improvement in their work incentives in the basic income experiment.

The employment responses among single-adult households with dependent children are somewhat mixed. In both years, the parameter estimates fail to reach statistical significance, but the estimate for the second year is nevertheless rather large, suggesting an increase of 10.33 days in employment. If taken at face value, this implies an increase of over 14% in employment relative to the control group. A closer examination, albeit with small sample sizes, reveals that this positive employment result for the second year is mainly driven by men (results not shown). As women typically live with children, also being their guardians in the case of joint custody, this strongly suggests that any improvements in employment among single parents remained

modest in the basic income experiment.

Lastly, we study heterogeneous responses to the experiment with regard to the use of unemployment benefits. Figure 5 shows that all family types had fairly similar profiles in their responses, but the use of the benefit declines most among basic income recipients without children. The single-person households reduce their benefit use the most, around 20 percentage points between May 2017 and September 2018. Compared to childless households, the decline in benefit use turns out to be far smaller among households with children. This follows from the possibility to top up basic income by applying for the child supplements available for unemployment benefits. Thus, in contrast to employment responses, the pattern of unemployment benefit usage is in line with changes in monetary incentives across different types of households.

3.2 Comparison to other benefit programs

Although the Finnish basic income experiment was conceptually different from typical social security, it had remarkable similarities with various in-work benefit programs. If a treated person remained unemployed, the basic income corresponded to unemployment benefits and he or she had no changes in disposable income. While members of the treatment and control groups were employed, a difference in their respective disposable incomes increased with labor income up to a point when all social benefits tapered off. After that point, the gap in disposable income between the treatment and control group stayed at €560 per month, that is, the maximum amount of in-work credit provided by the basic income experiment.

Figure 6 illustrates the role of the basic income experiment as an in-work credit that a treated person received at different levels of annual labor income. The lines represent differences in disposable income between the treatment and the control group for the four stylized households utilized previously in Figure 3.

Figure 6 confirms that the basic income experiment resulted in a sizable in-work credit that favored childless households at lower levels of labor income. These households also reached the maximum amount of in-work credit at lower levels of labor income than households with

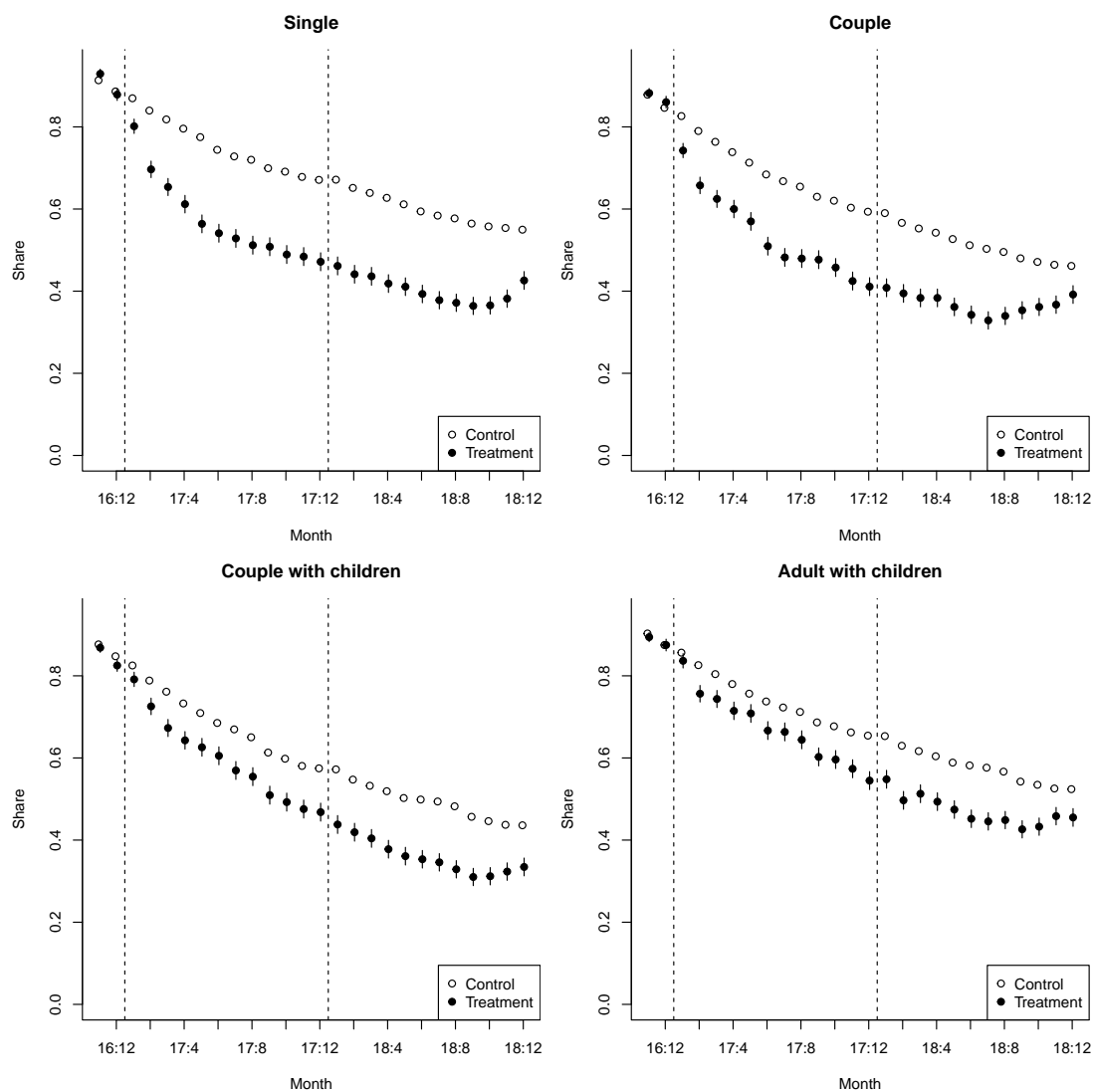


Figure 5: Use of unemployment benefits by family type. Vertical bars denote 95% confidence intervals for the treatment groups.

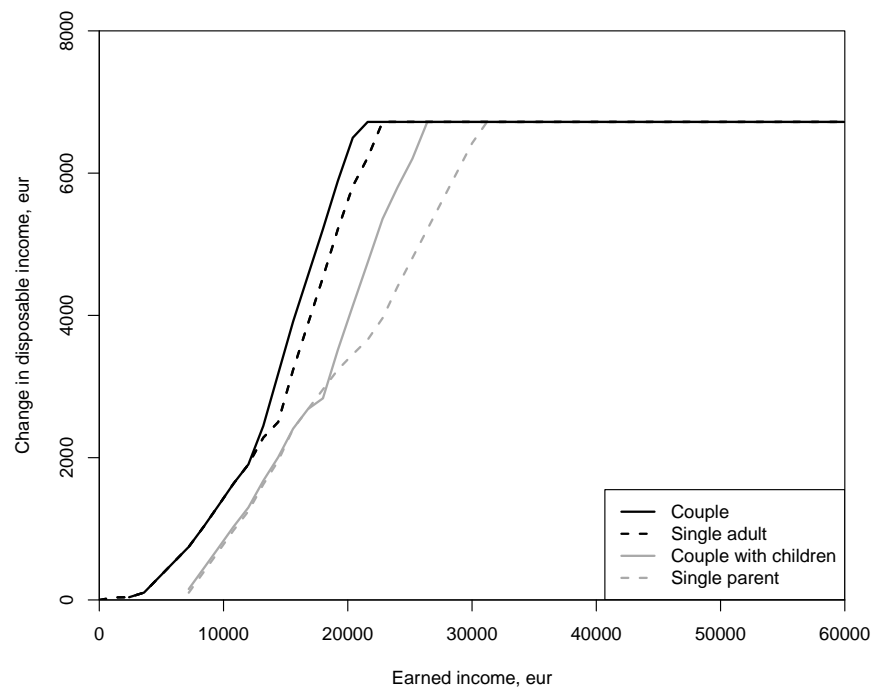


Figure 6: The basic income as an in-work benefit in the Finnish experiment. Annual change in disposable income by family type.

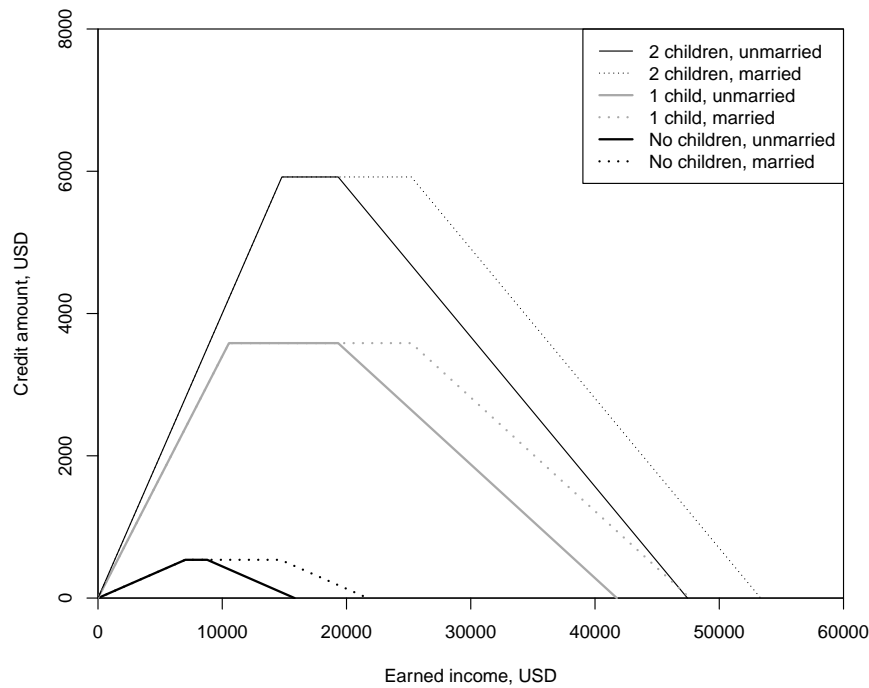


Figure 7: Amount of in-work credit in the EITC, 2020. Data source: CRS report 43805, 2021.

children.

Incentive structures

The in-work credit created by the basic income experiment differs from a typical in-work benefit program in two notable respects: 1) there is no phaseout region and 2) the maximum amount of credit does not depend on family type. These differences become evident when contrasting the experiment with the Earned Income Tax Credit (EITC) in the U.S. for which Figure 7 shows the credit amount for different family types.

The two figures on in-work credits are not directly comparable, as Figure 6 defines the credit as a difference in disposable income, whereas Figure 7 reports the amount of tax credit. Yet, the figures certainly facilitate a comparison of the incentive structures created by the basic income experiment and the EITC. At lower levels of labor income, both have a similar profile whereby

in-work credit increases with earnings, whereas the maximum amount of credit is reached at far lower levels of labor income in the EITC. There are also notable differences in the targeting of credit. The EITC provides considerably larger credits for families with two or more children than for other households. The basic income experiment offered the same maximum amount of credit to everyone, but the labor income required to reach the maximum was considerably lower for childless households. In addition, the level of credit was a great deal more generous for households with fewer than two children in the basic income experiment than in the EITC.

Another interesting point of comparison, and probably the welfare-to-work experiment closest to the Finnish experiment, is the Canadian Self-Sufficiency Project (SSP). The project, which ran from 1992 to 1999, was a randomized experiment and featured a sizable earnings supplement for single parents aged 19 or above who were long-term income assistance recipients in the Canadian provinces of British Columbia and New Brunswick. The supplement was paid if a qualified participant worked for over 30 hours a week over a four-week period. He or she was required to find a job, or multiple jobs, within 12 months of entering the program; the supplement was then paid for 3 years after receiving the first payment. The size of the supplement was set at half of the difference between a treated person's earnings and a benchmark earnings level, originally \$30,000 in New Brunswick and \$37,000 in British Columbia. In the treatment group, 36% received the earnings supplement, and their average payments exceeded \$18,000 during the three-year eligibility period (Michalopoulos et al. 2002). Hence, the SSP offered an in-work credit of the same size as the basic income experiment, but the credit was paid starting at a much lower annual labor income.

Behavioral responses

Both the EITC and the SSP have been found to have a positive impact on employment at the extensive margin. The EITC literature has reported sizable impacts for single women with children (Eissa and Liebman 1996; Meyer and Rosenbaum 2001) and maternal employment (Bastian 2020). The employment effects among married couples proved to be modest (Eissa

and Hoynes 2004). Some uncertainties remain, however, as to whether the positive employment effects observed can be attributed to the EITC alone (Kleven 2021). The SSP experiment was found to have an immediate employment effect. The employment response peaked 15 months after random assignment, after which it started to gradually decline. At its highest, the employment rate of the treatment group exceeded that of the control group by 15 percentage points. The long-term effects turned out to be less encouraging, as the control group essentially achieved the employment rate of the treatment group after a few years (Card and Hyslop 2005).

The positive impacts on employment noted in the case of the EITC and the SSP stand in contrast to what seem to be modest outcomes for the Finnish experiment. What is more, the types of households that responded to in-work credits seem to be different. Single parents did not react to changes in monetary incentives in the basic income experiment, whereas employment improved among couples with children. As 58% of treated persons belonged to childless households, their unresponsiveness to monetary incentives offset any improvements in employment among couples with children.

The relevant question here is why the responses of different households varied between the basic income experiment and the EITC/SSP. Unfortunately, due to power issues arising from the relatively small sample sizes of different household types in the Finnish experiment, we cannot provide a rigorous answer to this question. However, we are ready to rule out any explanations connected to difficulties in organizing day-care for children, as day-care is traditionally well organized and financially supported in the Nordic countries. It seems equally implausible that the amount of in-work credit could be a reason, as the credits are sizable in all three programs, even though the EITC provided the larger credits only for households with more than one child. Further, explanations related to the organization of in-work credits seem unlikely. An unconditional in-work credit paid monthly without phase-out should not have weaker employment responses when compared to an annually claimed tax credit with phase-out.

The most likely explanation for the differences in the program effects lies in the incentive structures. The maximum amount of in-work credit was available at considerably lower levels

of labor income in the EITC and the SSP than in the basic income experiment. Of the two randomized experiments, the SSP provided the largest earnings supplements for working full time in low-paid jobs. In the Finnish experiment, the labor income required to reach the maximum credit was the highest for single-parent households; it was twice as high as in the EITC. Jobs paying such wages might have required specific skills that many single parents in the target population of the experiment lacked.

3.3 Survey results

A telephone survey was conducted between October and December 2018 as a part of the evaluation of the basic income experiment. The sample consisted of all 2,000 individuals in the treatment group and 5,000 individuals from the control group who were randomly selected in September 2018. An additional 600 individuals from the control group were added to the sample in October 2018. After removing persons who could not be contacted, the final sample consisted of 7,049 individuals. Individuals selected for the survey sample were sent a letter and efforts were made to arrange interviews soon after that. Up to four attempts were made to call the potential interviewees, and a total of 3,970 individuals responded. Of these, 2,069 individuals refused to participate in an interview, and 268 individuals could not find an appropriate time for one. Accordingly, the response rate remained a modest 23.2% (Kangas et al. 2020).

The low response rate raised concerns over potential nonresponse bias, whereby the results were adjusted statistically to correct for the nonresponse. A response probability model was used to calculate unit adjustment weights based on core background characteristics including gender, age group, marital status, foreign language, pre-experiment unemployment benefit type, and region. Unfortunately, the response rate depended heavily on the treatment status, being 31.1% in the treatment group and 20.2% in the control group. This raises concerns over non-random reasons for refusals that may be correlated with the treatment effect. In this case, the weighted survey estimates of treatment effects suffer from selection bias.

The reported survey results were largely beneficial for the basic income experiment. Com-

pared to the control group, the respondents in the treatment group answered more positively on questions concerning life satisfaction, overall health, mental health, social life, and cognitive capabilities (Simanainen and Tuulio-Henriksson 2021). Their self-confidence was also better. They had more trust in institutions and confidence in their own future (Kangas et al. 2021), and they felt more secure financially (Lassander and Jauhiainen 2021).

One promise of basic income put forward in public debate is that it increases wellbeing by providing financial security. It may be tempting to interpret these results as evidence supporting the positive welfare effects of unconditional basic income versus traditional conditional social benefits. However, we believe that there are several caveats in such an interpretation. First, it is likely that self-reported wellbeing is higher among the survey respondents, but the magnitude of this effect remains uncertain because of selection bias. Second, only a relatively small share of the treatment group actually gave up conditional social benefits; the majority decided to claim benefits on top of the basic income (see Figure 5). Finally, because the basic income in the Finnish experiment could be seen as an in-work-benefit that substantially increased the income of employed people, welfare effects can be more easily explained by the increase in income rather than by basic income *per se*. Verho et al. (2022) estimate that taxable income (including the basic income payments) grew by €3,235 in the treatment group during the experiment, which is a substantial increase for a low-income population.

4 Conclusions

The setting up of a nationwide randomized experiment requires co-operation, administrative resources, and financing. The Finnish basic income experiment had its struggles with co-operation, and the end result was a balancing act between scientific and political objectives, but it succeeded well with administrative resources in running the experiment. When it comes to financing, the experiment turned out to be far less expensive than expected. It was given a budget of €20 million for two years. As the basic income replaced minimum unemployment

benefits, the net cost of a treated person who remained unemployed during the experiment was effectively zero. Taking this into account, Hämäläinen et al. (2020) estimated that only some €5.5 million of the budget was used as basic income payments in net terms. The experiment also required administrative resources while drafting the law, preparing the payment system, and implementing the arrangements. Much of this fell within established administrative routines, so it is unlikely that the inclusion of administrative resources dramatically increased the costs of the experiment.

The basic income was paid to all individuals in the treatment group regardless of their labor market status or job search efforts. This was a novel feature for a Nordic welfare state where unemployment benefits have traditionally been conditional on claimant behavior. The basic income experiment also lowered the effective tax rates, which substantially improved monetary incentives to work. Previous evaluation studies of the experiment have shown that neither of these changes produced a strong response in the treatment group. Participation in reemployment services remained at a high level, and the average employment effects were minor.

The basic income was introduced into the existing social benefit system in a way that created variation in work incentives between family types due to differences in the eligibility for different social benefits. This study extends previous studies by analyzing employment responses across different households. Our results show that only couples with children benefited from the basic income in terms of employment. Employment responses among other family types remained negligible, even though the experiment provided larger improvements in monetary incentives to work for childless households than for those with children. These results differ from other in-work credit programs, such as the EITC, for which previous studies have reported more positive employment results, especially for single parents.

The finding that in-work credits have diverse effects on households in different contexts is certainly worth noting in future welfare-to-work reforms. Further, we believe that the Finnish basic income experiment provides other important lessons. The incorporation of basic income to a complex social security system is a demanding task, one that requires co-operation among

and the full commitment of all parties involved. These have to be ensured even before the planning process begins. The framework of the Finnish experiment can be easily expanded by including tax parameters in a model and adding groups other than the recipients of minimum unemployment benefits to the analysis population. Doing so would provide further information on the adoption of basic income as a nationwide policy, albeit with the reservation that the improvements in monetary work incentives would have to be smaller. In the case of long-term unemployed persons, the relatively small and heterogeneous employment effects observed in the Finnish experiment cause concerns over basic income. It may well be that randomized experiments geared to helping long-term unemployed persons should focus on particular problems in the existing tax-benefit system rather than on changing that system elementally through provision of a basic income.

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