Welfare Effects of Increasing Transfers to Young Adults: Theory and Evidence.

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Abstract

Despite experiencing disproportionate poverty, young adults encounter barriers to the implementation of targeted transfer programs due to policymakers' concerns about potential adverse effects. This paper introduces a comprehensive framework for comparing the local welfare effects of increasing government transfers to young adults versus older individuals. It encompasses various age-dependent behavioral responses to changes in government transfers, including educational and labor supply decisions, as well as interactions with parents-to-child private transfers from parents to children. Leveraging bank transaction data, I find that the social marginal utility of a policy targeting young adults compared to a policy targeting older individuals is 2 to 4 times larger, depending on the tagging of young adults. Accounting for fiscal costs, I find that the welfare effect of increasing government transfers to students from low-income families and young workers is 6 and 2 times higher than that of targeting older individuals, respectively. These findings suggest redistributing resources from older to younger individuals would be highly welfare-enhancing.

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1 Introduction

Despite facing the highest poverty rates across all age groups, young adults aged 18 to 24 receive limited social assistance, especially when compared to individuals aged 25 and above. Notably, in France, they are almost systematically excluded from the minimum social assistance (Revenu de Solidarité Active, RSA), while their counterparts in the United States are ineligible for the Earned Income Tax Credit (EITC), adding to their financial struggles. This shortage in social assistance coupled with short employment spells rendering them ineligible for unemployment benefits, contributes to a poverty rate double that of slightly older individuals aged 25 to 30. Meanwhile, at ages 18-24, young adults make life-altering decisions regarding education and career paths that are largely shaped by financial status (Bonneau and Grobon, 2022). In this context, parents play a crucial role in providing financial support to their children. However, the government falls short when parents cannot fulfill this role, leaving children from low-income families facing disproportionate financial constraints. This situation discourages higher education pursuits and perpetuates social reproduction[1]. These challenges prompt considerations of the potential impact of increasing social assistance for young adults.

The reluctance of policymakers to enhance social assistance for young adults may stem from a limited understanding of its potential costs and benefits. On one hand, the benefits are determined by the utility gain of the recipients, which may vary with age. Additionally, transfers to young adults may crowd-out parental support, potentially redirecting benefits more towards parents than the intended recipients. On the other hand, costs are driven by behavioral responses that may significantly differ when targeting young adults versus older individuals, influencing not only labor supply decisions but also educational choices. The age-specific transfer value, coupled with heterogeneous behavioral responses, contributes to the ambiguity in the potential effects of increasing transfers to this age category.

In this paper, I investigate the welfare implications of redistributing resources from older to younger individuals. To that end, I compare the welfare impact of increased transfers for young adults with that for older individuals. I derive sufficient statistics characterizing the relative welfare effects of age-based transfer policies, offering insights into the mechanisms that shape the trade-off between benefits and costs. My empirical approach leverages French bank transaction data to assess the policy's benefits. Simultaneously, I use a combination of literature estimates and bank transaction data to quantify behavioral responses, offering a deeper understanding of the potential welfare-enhancing effects associated with redistributing transfers to young adults.

[1] As shown for instance by Fack and Grenet, 2015, Castleman and Long, 2016 or Lochner and Monge-Naranjo, 2012)

I develop a theoretical framework that accommodates the complexities of young adults' decisions while accounting for the financial support of parents. This dynamic model, rooted in conventional consumption and saving decisions, also incorporates young adults' education decisions. Additionally, I extend the conventional framework by modeling both young adults and their parents to integrate endogenous transfers from parents to children. Overall, this framework integrates endogenous education decisions and inter-generational financial support into the standard consumption dynamics model. Delving into the specifics, the model allows to study the interaction between young adults' education decisions and government transfers thus shedding light on the trade-off between the return to education and financial constraints. Endogenous transfers from parents to children enable parent transfers to increase as a response to a rise in government transfers targeting parents (pass-through) and to decrease when the rise in government transfers targets young adults (crowding-out). The optimal transfer amount chosen by parents is shaped by altruism. I deviate from the standard pure altruism motives as it mechanically leads to an unrealistic scenario of a full crowding out of parent transfer by government transfers (see McGarry, 2000 for a review). I relax this assumption to more closely align with empirical findings, flexibly defining altruism by a mixture of pure altruism and warm glow but with a desire for their child's autonomy (see Bengtson, 2018 or Brandt and Deindl, 2013 for various motive of giving testing). I leverage the model to analyze the effects of increasing benefits for young adults compared to older individuals. In this framework, young adults are represented as the children, while older individuals are characterized as parents. This modeling choice is non-restrictive and convenient, providing insights into older individuals out of education but that may have positive externalities on their children. Drawing from the Marginal Value of Public Funds (MVPF) literature established by Hendren and Sprung-Keyser, 2020 which states that comparing the benefit-cost ratios of different policies reveals their relative welfare effects, I specifically investigate the benefit-cost ratios of transfer policies designed for younger versus older populations. This analysis allows to provide pieces of evidence regarding the direction of redistribution that would enhance welfare. In other words, finding one ratio to be larger than the other suggests the existence of a combined budget-neutral policy redistributing from one group to another, ultimately enhancing welfare. The magnitude of the difference further informs on the scale of potential redistribution. I characterize sufficient statistics allowing to measure the benefit-cost ratio of a transfer policy targeting younger individuals compared to older ones. First, I focus on the benefit ratio between younger and older individuals. Subsequently, I compared it with the cost ratio.

First, the benefit is quantified through the social marginal utility of the transfer, derived from the marginal utility of consumption and weighted by Pareto weights. However, the conventional framework assumes that the full government transfer is received by the intended recipient. In this paper, the policy's incidence is less clear. For instance, an older individual receiving an additional government transfer may pass on a share to their child. The calculation of social marginal utility then depends on the utility gains of the recipient and the child utility gain induced by the pass-through. Similarly, increasing transfers to a young adult involves evaluating crowding-out effects on parent transfers, which could potentially mitigate the young adult's utility gain. Consequently, calculating the benefit involves assessing transfer derivatives (crowding out and pass-through) and the marginal utility of consumption for both younger and older individuals. The primary challenge lies in estimating the marginal utility of consumption. Drawing from prior literature, particularly Landais and Spinnewijn, 2021, I map the difference in the marginal utility of consumption to the empirical difference in the marginal propensity to consume (MPC). This approach suggests that the ratio of MPC between young adults and older individuals provides a conservative estimate for the ratio of marginal utility of consumption. In summary, the social marginal utility gains from the policy are comprehensively captured by the marginal propensity to consume of both young adults and older individuals, along with transfer derivatives.

Secondly, the model is tailored to study the fiscal cost of both policies. While a one-euro increase in benefits would generally result in a mechanical cost of one euro, behavioral responses from the targeted individuals would influence this cost. The measurement of these responses is enabled by the model's sufficient statistics. For older individuals, fiscal externalities are encapsulated by the labor supply elasticity. In contrast, for younger individuals, the fiscal externality is as a combination of labor supply elasticity and education decision elasticity weighted by the associated return to education.

I use highly granular bank transaction data and administrative data from France to inform the trade-off between the benefit and the cost. I start by attempting to compare the social marginal utility of both policies by computing MPC and transfer derivatives. To compute MPC I rely on two one-shot transfers made by the government targeting both populations separately at different point in time. I then exploit the granularity of bank transaction data to pin-down the treated individuals and take advantage of the credit card transaction information to study exactly how much of this extra transfer has been consumed. I build comparable control groups for each transfer using a nearest-neighbour matching that I then compare to the treated individuals following the Difference-in-Difference analysis. Under the identifying assumption, the DID estimate exactly retrieves the causal increase in consumption induced by the government transfer, which rescaled, identify the MPC. I adopt a straightforward approach for transfer derivatives, regressing the parents-to-child transfer variation on the income variation of successively parents and children respectively identifying the pass-through and the crowding-out. This simple, yet informative analysis, while not providing a causal effect, offers valuable insights. Notably, it enhances previous literature that was relying on cross-sectional survey data. Indeed, my data track the same individuals over multiple months, capturing numerous income variations and provide a very accurate measurement of transfers from parents to children. For additional robustness, I propose a second measurement of the crowding-out, akin to a Regression Discontinuity Design (RDD). I leverage the heterogeneity in government scholarship amounts and the associated attribution rules to compare parental assistance for comparable students receiving different scholarship amounts.

My empirical findings reveal a nearly twofold difference in the Marginal Propensity to Consume (MPC) between young adults (45%) and older individuals (25%), suggesting a higher value for the former in receiving an extra euro. However, a crowding-out effect would reduce the actual amount received by young adults out of a government transfer, ultimately mitigating the value they attribute to a government transfer. Relying solely on MPC is insufficient to draw conclusions about the social marginal utility of the policy, as it requieres considering policy incidence. I use bank transaction data's granularity to measure transfer derivatives. Since the data are silent on the non-wire transfer assistance, I focus the analysis on young adults living away from their parent's place to lessen the data limitation. On one hand, I find a clear upward trend between the parent's income change and the variations of parent-to-child transfer. However, the slope is relatively flat, with a pass-through effect of 1%. This finding suggests that targeting older individuals has minimal impact on young adults. On the other hand, parent-to-child transfers significantly decrease as young adults' income increases. Regressing children's income variation on parent-to-child transfers yields a crowding-out estimate of 7%. The robustness of the analysis is supported by the RDD specification, producing a qualitatively similar estimate of 9%. To address concerns about potential underestimation due to data limitations, I use survey data to determine the share of parent's non-wire transfer assistance. Half of the assistance provided by parents is conveyed through non-wire transfers, predominantly via rent payments. Although rent payments may not be as responsive as wire transfers, I assume the crowding-out effect for rent payments is equivalent to that of wire transfers, resulting in a doubling of all transfer derivatives estimates in subsequent analyses. This approach establishes an upper bound for transfer derivatives, yielding a conservative estimate of the difference in social marginal utility. Mapping these sufficient statistics back to the model reveals a significant 2.08-fold difference in the social marginal utility of policies targeting young adults compared to those targeting older individuals. This pronounced difference, attributed to the higher valuation of transfers by young adults and low transfer derivatives, supports the case for redistributing resources from older to younger individuals. To explore further policy implications, I investigate whether this difference is more pronounced when considering specific groups of young adults and, if so, by just how much. I replicate the analysis focusing on two subsets of young adults: students with low-income parents and non-students with low or no income. The results demonstrate an even larger contrast compared to older individuals, with the marginal utility of transferring to a student with low-income parents being 3.7 times larger and 3 times larger for non-students with low income. These findings suggest that redistributing based on these tagging could significantly enhance overall welfare, given the substantial utility gains for the recipients within these populations.

Assessing the welfare impact of redistribution requires to quantitatively compare these results with the relevant fiscal externalities. To achieve this, I align the theoretical sufficient statistics of the fiscal cost of both policies with prior estimates found in the literature. Older individuals behavioural responses is defined by labor supply elasticity and wealth elasticity, which leads to a fiscal cost of 1.14 according to Hendren and Sprung-Keyser, 2020, Cesarini et al., 2017 and Hotz and Scholz, 2001. To compute the fiscal cost of an increase in transfer to young adults, I split the young adults into two categories; student and non students. For each, I recover the elasticity of labor supply, wealth, education decision and the return to education of the individuals that switch their education decision due to the increase in transfer. Mapping all those empiric results of the literature back in the model, I find a fiscal cost of 0.9 of targeting student and 1.4 of targeting low income non-student.

Bringing the benefits and costs together, I find that the MVPF out of increasing transfers to young adults with economically disadvantaged parents is 6 times greater than the MVPF associated with a targeting of older individuals. Furthermore, the MVPF for directing assistance to young non-students with low income is twice as pronounced as that for parents. In essence, these differences are substantial, indicating that redistributing from older individuals to younger individual would be largely welfare enhancing.

The paper proceeds as follows. Section II develops the conceptual framework that guides the empirical analysis. Section III the institutional background and the data. Section IV provides some descriptive evidences. Section V considers consumption smoothing gain of the policies considered. Section VI examines it fiscal cost. Section VII put all the pieces together providing the welfare effects of redistributing from older to younger individuals. Section IIX concludes.

2 Conceptual Framework

This section introduces a dynamic model designed to highlight the key trade-offs involved in shaping the government age-profile transfer policy. It accounts for age-heterogeneity in the behavioral responses to transfers. This model provides key sufficient statistics to characterise the (local) welfare gain and cost of an change in the tilt of age-dependant government transfers.[2]

2.1 Setup

This set-up provides a dynamic model in discrete time t, that starts at $t = 1$ and finishes at $t = T$. The population is a continuum of mass 1. It is characterised by an economy composed of two types of agents, parents and children. Each parent, indexed by i, has a single child, also indexed as i. To enhance clarity, parents decisions are super-indexed by P and children decision by C. The model is designed to capture the education decision of children who are assumed to have already completed mandatory education at the start of the model. They choose whether or not they want to pursue education in the first period ($t = 1$). Opting for education delays their entry into the labor market until $t = 2$, while choosing otherwise results in immediate entry into the labor market at $t = 1$. Parents start employed and remain so for all the periods. Each working agent earns an income y, pays a linear tax τ, and receives a government transfer $b \in \mathbb{R}_+$. Government transfers differ from parents (b^P) to children (b^Y), and depend on the educational status of the children. Parents receive b^{Pe} when their child is in education and b^{Pw} otherwise. A child in education receives b^{Ce}, while a child not in education receives b^{Cw}. In contrast, the linear income tax τ is non-state-specific and is therefore uniform across all agents. This set-up models parents-children interactions by allowing parents to financially assist they child through a private transfer g.

Shocks and Productivity.– Productivity is characterized by the state variable $\zeta_{i,t}$. At each time t, individual decisions and income are determined given the agent's productivity history up to that point. Each agent starts with an initial productivity ζ_{i0}. At any period t, the agent experiences productivity shocks following a distribution function F. The productivity of children crucially depends on whether or not they purse education at $t = 1$. Therefore, the distribution of children productivity is conditional on both the education level and the past history of ζ. The return to education are positive, implying that $F(\zeta_{i,t}|Education) < F(\zeta_{i,t}|NoEducation)$.

Intertemporal Consumption.– At each time t, children and parents can smooth consumption by deciding to borrow or save using their asset A_{t+1}. They enter the economy with an initial

[2]In Appendix are provided all the computational details.

asset level A_0, and cannot borrow more that $\bar{A}_i$. Following (Landais and Spinnewijn, 2021), the price of smoothing consumption will be denoted p_{it}. It reflects the negative shadow price of consumption and is allowed to vary across individuals. Indeed, the lower p_{it} the higher the shadow price of consumption. It can also be interpreted as the price of increasing resources at the present time. The lower p_{it}, the higher the cost of increasing consumption in the period considered. The remaining disposable income is consumed $c_{i,t}$.

Education decision - Children Specific.– At time $t = 1$, children can decide to pursue higher education, or not. If the child is in education $s(e) = 1, 0$ otherwise. The decision whether or not to pursue education is denoted $e \in \{e_l, e_h\}$, with e_l indicating no higher education. In all the following periods, all children are in the labor market and decide how much to work, consume and save. The cumulative distribution function is $F(\zeta_{i,t}|e_H)$ if the child has undergone education, $F(\zeta_{i,t}|e_L)$ otherwise.

Transfer decision - Parents Specific.– Parents are altruistic toward their children. They care about their child and consecutively choose how much to transfer to them. The parent transfer g_t state-specific, g_t^e when the child is in education, g_t^w otherwise ($g_t \in \mathbb{R}_+$). I build altruism to allow flexibility in the giving motives so has to match the empirical results that suggest the need to move always from the so-called neutrality.[3]. I follow the three main channels found in the altruism literature. First, a part of altruism is "pure", parents care directly about the utility of the child. Secondly, part of the altruism is "unpure", following the warm glow approach, parents' utility increases with the amount transferred regardless of the initial utility of the child. Finally, moderating the value of transferring, parents also care about the child being financially independent. This flexible way of modeling altruism allows to break the so-called transfer derivative and so the symmetry in parents transfer responses to an increase in government transfer targeting the children and parents. The optimal level of transfer g is therefore chosen by considering both parents' utility and children's utility weighted by the altruism function G.

Children Program Following the set-up previously detailed, the expected lifetime utility of children can be defined as follows:

$$\mathcal{U}_i^C(c, y; \zeta) = \sum_{t=1}^{T} \beta^t \left(s_{it}(e) \int_\zeta u^e\left(c_{it}^e\right) dF(\zeta_{it}) + (1 - s_{it}(e)) \int_\zeta u^w\left(c_{it}^w, y_{it}^w; \zeta_{it}\right) dF(\zeta_{it}|e_k) \right)$$

The children's optimization problem is therefore to maximize $\mathcal{U}_i^C$ subject to the following constraints:

[3]This hypothesis states that parent transfers are fully crowd-out by government transfer - [add references]

$$
\begin{cases}
c^e_{it}(\zeta_{it}) = A_{it}(\zeta_{it}) + g^e_{it}(\zeta_{it}) + b^{Ce}(\zeta_{it}) - \dfrac{A_{it+1}(\zeta_{it})}{p^e_{it}}, & \text{if } s_{it}(e) = 1 \\
c^w_{it}(\zeta_{it}) = A_{it}(\zeta_{it}) + y^w_{it}(\zeta_{it})(1-\tau) + g^w_{it}(\zeta_{it}) + b^{Cw}(\zeta_{it}) - \dfrac{A_{it+1}(\zeta_{it})}{p^w_{it}}, & \text{if } s_{it}(e) = 0
\end{cases}
$$

The utility and budget constraints vary based on the child's education status, where $s = 1$ represents being in education, and $s = 0$ indicates otherwise. When the child is in education, she chooses her consumption level as c^e_{ij} and how much to grow assets or debt as A_{it+1}. However, when she enters the labor market, she also has to decide her labor supply y_{ij}.

The resulting indirect utility function is denoting $V^C_i(b^C, \tau, g)$.

Parents Program The expected utility of parents is written as follows:

$$
\mathcal{U}^P_i(c, y, g; \zeta) = \sum_{t=1}^{T} \beta^t \int_\zeta u^{Px}\left(c^{Px}_{it}, y^{Px}_{it}, g^{Px}_{it}; \zeta\right) dF(\zeta_{it}) + G\left(V^C\left(b, \tau, g^*\right), V^C\left(b, \tau, 0\right)\right)
$$

Parents utility $\mathcal{U}^P_i$ depends both on their own utility and on the indirect utility of their child which is shaped by the altruism function $G(\cdot)$. This altruism function reflects the fact that parents are concerned about both their child's utility at the optimal level of private transfer, and the utility of the child deprived of this transfer. Parents aim to maximize $\mathcal{U}^P_i$ subject to the following budget constraints:

$$
c^{Px}_{it}(\zeta_{it}) = A^{Px}_{it}(\zeta_{it}) + g^{Px}_{it}(\zeta_{it}) + b^{Px}(\zeta_{it}) - \frac{A_{it+1}(\zeta_{it})}{p^{Px}_{it}}
$$

with $x = e$ if $s^*_{it}(e) = 1$, w otherwise.The budget constraints differ when the child is in education ($x = e$) or on the labor market ($x = w$). It differs because the parents may not receive the same government transfer and she has to take into account the status of it child to decide it optimal level of private transfer.

The resulting indirect utility function is denoting $V^P_i(b^P, \tau)$.

Government The government revenue is obtained from the linear tax, while expenditures are allocated via conditional transfers, contingent not on income but rather on age and educational status. The government aims to maximize a generalized utilitarian social welfare function, attributing weights w^C_i to children and w^P_i to parents. The maximization is subject to the government budget constraint $GBC(b, \tau)$, with b being a vector of transfer to both parents and children (b^Y, b^P).

$$\max \mathcal{W}(b,\tau) = \int_i w_i^C V_i^C(b^C,\tau)di + \int_i w_i^P V_i^P(b^C, b^P,\tau)di + \lambda GBC(b,\tau) \tag{1}$$

The government budget constraint is the following:

$$GBC = -S \times b_1^e - (1-S)(b_1^w + \bar{\tau}_1^{e_L}) + \sum_{t=2}^{T}(S \times \bar{\tau}_t^{e_H} + (1-S) \times \bar{\tau}_t^{e_H} - b_t^w) + \sum_{t=1}^{T}(\bar{\tau}_t^P - b_t^w)$$

With S the share of children in education at $t = 1$, $\bar{\tau}_t^{e_k}$ the revenue raised through children labor taxation ($k = l$ for individual that didn't pursue education, and $k = h$ for individuals that did) and $\bar{\tau}_t^P$ the revenue raised through parents labor taxation.

2.2 Transfer Policy and Reform

This model aims to characterize the local welfare effects of a simultaneous change in transfer policies targeting parents and children. To that end, it considers both local deviation in b_t^C and b_t^P, starting from any initial transfer profile $\{b_t\}_{t=1}^T$. I break down the resultant welfare effect into two components: the benefit, arising from consumption smoothing gains and the cost incurred due to fiscal externalities.

Transfer Policy Consider a deviation in government transfer b_t^k that can be directed towards four distinct groups: parents with children in education ($k = Pe$), parents with children in the labor market ($k = Pw$), or children themselves, either in education ($k = Ye$) or in the labor market ($k = Yw$). The resulting welfare effect is written as follows:

$$\frac{\partial \mathcal{W}(b,\tau)}{\partial b_t^k} = \underbrace{\frac{\partial \int_i w_i^Y V_i^Y(b^Y,\tau,t)di}{\partial b_t^k} + \frac{\partial \int_i w_i^P V_i^P(b^Y, b^P,\tau)di}{\partial b_t^k}}_{\equiv\ \mathcal{W}_t^{CS_k}} + \lambda \frac{\partial GBC(b,\tau)}{\partial b_t^k} \tag{2}$$

The two first terms on the right-hand side, denoted $\mathcal{W}_t^{CS_k}$, capture the social marginal value of increasing one euro of transfer to individuals with characteristics k. This effect only hinges on the social marginal utility of consumption of the beneficiaries (SMU). Indeed, as a consequence of the envelope theorem, behavioral responses, such as labor supply or saving adjustment, are fully internalized by the agent and therefore impact their own welfare only through a second-order effect. Thus, the social marginal value of the transfer is entirely driven by the social marginal utility of consumption. The same behavioral responses however impact the third term of Equation 2, that is the government budget constraint. Because of these behavioral responses, an increase in the transfer by one dollar may lead to a fiscal cost that deviates from one dollar. For instance, if increasing the government transfer targeting children by one dollar leads to a decrease in the labor supply, the fiscal cost would be the sum of this one-dollar extra expenditure plus the loss in revenue due to a decline in tax levied. The welfare analysis therefore requires diving into both the consumption smoothing gain and the fiscal cost of the policy.

Consumption Smoothing Gains.– The following paragraph explores the welfare gain associated with increased benefit b_t^x. The envelope theorem dictates that the welfare gain is fully captured by the marginal utility of consumption at time t as the transfer is changed. Behavioral responses, spanning decisions related to labor supply, savings, and educational choices, yield only a second-order impact on agents' welfare. This ensures that behavioral responses solely affect welfare through their influence on the fiscal cost. In addition, note that I assume that the government only cares about the direct effect on the agent's welfare. Specifically, it translates into neglecting the welfare-enhancing effect due to altruism. For instance, when government transfers to children increase, the social welfare ignores the fact that because of altruism, parents' utility is mechanically going to increase in response to a rise in children's utility. Mathematically, this corresponds to disregarding $G\left(V^c(b,\tau,g^*),V^c(b,\tau,0)\right)$ in the utility of parents. Keeping this in mind, we can now derive the consumption-smoothing effects of a deviation in government transfers. Let's first examine a policy change toward parents and second toward children.

First, the consumption smoothing welfare effect from marginally deviating government transfer to parents can be re-written as

$$\begin{aligned}\mathcal{W}_t^{CS,Px} &= S_t^{Px} \times \left[\mathbb{E}\left(w_i^P \frac{\partial u_{i,t}^{Px}(\cdot)}{\partial c^{Px}}\middle| s_{it} = \mathbb{1}_{x=e}\right) + \mathbb{E}\left(w_i^C \frac{\partial u_{i,t}^{Cx}(\cdot)}{\partial c^x}\frac{\partial g^x}{\partial b^{Px}}\middle| s_{it} = \mathbb{1}_{x=e}\right)\right] \\ &= S_t^{Px} \times SMU_t^{Px}\end{aligned} \tag{3}$$

with $x \in \{e, w\}$, assuming $\beta = 1$ and S_t^x the share of parents at time t with their child in education (when $x = e$), or in the labor market (when $x = w$). The first term of consumption smoothing gain is the parent's social marginal utility of consumption out of an extra euro of government transfer. This SMU is simply the expectation of the marginal utility of consumption weighted by the individual welfare weight of the beneficiaries. The second term is the spillover effect of this same transfer onto children. Specifically, children receive $\partial g^x/\partial b^{Pk}$ euros from this government transfer increase. It arises because parents raise their private transfers to their children by $\partial g^x/\partial b^{Pk}$ euros when receiving an extra income. This ratio is referred henceforth to as the "pass-through". The total social marginal utility of consumption is the sum of those two parts: the social marginal utility of consumption for parents and the social marginal utility of consumption for children weighted by the spillover effect.

Second, the consumption smoothing welfare gain from increasing government transfer targeted toward children can be re-written as

$$
\begin{aligned}
\mathcal{W}_t^{CS,Cx} &= S_t^{Cx} \times \mathbb{E}\left(w_i^C \frac{\partial u_{i,t}^k(\cdot)}{\partial c^x} \left(1 + \frac{\partial g_{it}^x}{\partial b^x}\right) \Big| s_{it} = \mathbb{1}_{x=e} \right) \\
&= S_t^{Px} \times SMU_t^{Px}
\end{aligned}
\tag{4}
$$

The social marginal utility is captured by the expectation of children's marginal utility of consumption. This amount is weighted by the individual social weights and, most importantly, by the actual amount received by children. Notably, when the government increases transfers to children by one euro, the total income change for children may be less than one euro. This occurs because parents reduce their private transfers by $\partial g_{it}^x / \partial b^x$ in response to the government's transfer increase. As a result, the child's budget constraint increases by $1 + \left(\partial g_{it}^x / \partial b^x\right)$. By the envelope theorem, this adjustment leads to the expression for the SMU_t^{Cx} as shown in Equation 4.

Fiscal Cost.– The change in the policy path also has an impact on welfare through the budget constraint. On the one hand, an increase in benefits results in a mechanical increase in government expenses, irrespective of the age of the recipient. An increase in benefit by one euro mechanically increases the fiscal cost by one euro. On the other hand, the same increase triggers behavioral responses that may diverge depending on age and whether the benefit increase is directed at students or workers. For instance, targeting parents should distort the labor supply while targeting young adults might distort both labor supply and education decisions. Hence, the government revenue encounters different variations when it comes to a benefit increase targeted at parents, children in education, or children in the labor market. Let's derive subsequently the impact of the considered policies on the government revenue.

An increase in government transfer targeting parents leads to the following fiscal cost:

$$
\begin{aligned}
\frac{\partial GBC}{\partial b_t^P} &= -1 + \sum_{t'=1}^{T} \tau_{t'}^P \frac{\partial \mathbb{E}\left(y_{it'}(\zeta_{it'})\right)}{\partial b_t^P} \\
&= -\left(1 + FE^P\right)
\end{aligned}
\tag{5}
$$

The first term corresponds to the mechanical cost, while the second term represents fiscal externalities (FE). Parents' fiscal externalities stem from behavioral responses that are exclusively driven by changes in labor supply. An increase in benefits enhances wealth, which can lead to shifts in labor supply. Pursuing with the same reasoning, the fiscal cost of raising benefits for a working child can be expressed as follows:

$$
\begin{aligned}
\frac{\partial GBC}{\partial b_1^w} &= -(1-S)\left[1 - \underbrace{\frac{\partial(1-S)}{\partial b_1^w(1-S)}}_{\text{Edu. Distortion}} \left(\bar{\tau}_1{}^{e_L} + \sum_{t=2}^{T} \tau_t \underbrace{\mathbb{E}\left(R_{it} \middle| \frac{\partial S}{\partial b_1^w} = -1\right)}_{\text{Return to Education}}\right) + \underbrace{\sum_{t=1}^{T} \tau_t \frac{\partial \mathbb{E}_{e_L}(y_{it})}{\partial b_1^w}}_{\text{LS Responses}}\right] \\
&= -(1-S) \times \left[1 + FE^{Cw}\right]
\end{aligned}
\tag{6}
$$

The fiscal cost can be broken down into the mechanical cost, which is equal to 1 and fiscal externalities induced by behavioural responses. The behavioral responses in this context are twofold. The two terms account for the fact that an increase in b_i^w might modify the education decision ($\partial S/\partial b_1^w$). An increase in transfer in the labor market might decrease the share of children pursuing education. Indeed, the attractiveness of education relative to the outside option decreases with b^w. The first term shows that in the first period the government revenue might gain from less people doing education as he can now tax their income, that would have been zero if they would have done education. The second term however shows that this distortion in education might leads to a decrease in the government revenue for $t > 1$ as the taxable income of those pivotal individuals decreases by the return to education. In other words, some children that would have pursue education in the absence of transfer now decide to go directly on the labor market, making their intertemporal income decreasing by the return to education (difference between the potential income if the individual would have done education minus his income if he had not pursue education). Finally, the last term of equation 6 shows that akin to parents, children recipients respond to the benefit increase by adjusting their labor supply at each $t' \geq t$.

Finally, the fiscal cost of increasing benefits to a student is the following:

$$
\begin{aligned}
\frac{\partial GBC}{\partial b^e} &= -S\left(1 + \underbrace{\frac{\partial S/S}{\partial b^e}}_{\text{Edu. Distortion}} \left[\bar{\tau}_1{}^{e_L} - \sum_{t=2}^{T} \tau_t \underbrace{\mathbb{E}\left(R_{it} \middle| \frac{\partial s(e_{i1})}{\partial b^e} = 1\right)}_{\text{Return to Edu.}}\right]\right) \\
&= -S \times \left[1 + FE^{Ce}\right]
\end{aligned}
\tag{7}
$$

The fiscal externalities arise from distortion in education choices. Education is likely to attract more children. The first term indicates that the government revenue might decreases in first period as it loses revenue from the taxable income of the new students that would have been in the labor market in the first period in the absence of the transfer. However, in the subsequent periods, the taxable income of the pivotal individuals increases by their return to education, which leads to an increase in the taxes gathered by the government.

Welfare Effects Comparison Looking at the social marginal utility and fiscal externality separately provides insights into the main mechanisms triggered by a policy change in benefits. Nevertheless, the ultimate goal of this analysis is to assess the desirability of redistributing resources from older individuals to young adults. This evaluation is enabled by investigating the welfare effects of simultaneously modifying benefits for both parents and children. Such an analyse can be conducted following the Marginal Value of Public Funds (MVPF) literature (as detailed in Hendren, 2016 and Hendren and Sprung-Keyser, 2020). This approach suggests that evaluating the ratio of the marginal benefit to the net marginal cost of a policy allows for drawing conclusions on the potential welfare-enhancing effects of that combined policy.

Proposition 1. *A budget neutral combined policy (change in the tilt b^e/b^P) increases welfare if an only if:*

$$\frac{SMU_t^{Cx}}{1 + FE_t^{Cx}} > \frac{SMU_t^{Px}}{1 + FE_t^{Px}} \tag{8}$$

With the right ratio being the MVPF of an increase in b^x and the left ratio the MVPF of an increase in b^{Px}. The MVPF metric offers the advantage of directly comparing two policies, providing a straightforward assessment of both the benefits and costs associated with changes in government transfers. A high MVPF indicates that the cost of the policy is relatively modest in comparison to its benefits. Hence, the inequality 19 can be interpreted as follows: when assessing the social value per dollar spent, accounting for fiscal externalities, if policy A yields a greater value than policy B, it suggests that welfare can be enhanced by reallocating the euro raised by policy B to policy A. In other words, there exists a hypothetical budget-neutral combined policy that increases welfare by redistributing resources from policy B to policy A.

2.3 Sufficient Statistics

Finally, I derive sufficient statistics that allow for empiric estimation of the welfare effect of government transfer policy computed in this model.

Consumption Smoothing Benefit The first step in deriving sufficient statistics for the consumption smoothing gains is simplifying the SMU formula.

Lemma 1. *Assuming that* $\forall i, t,\ c^k(\zeta_i, t) = c^k_t$ *and* $w^k_i = w^k$*, the social marginal utility can be written as follows:*

$$1.\ \ SMU^{x,Px}_t = w^P \frac{\partial u^{Px}_t(\cdot)}{\partial c^{Px}} + w^C \frac{\partial u^{Cx}_t(\cdot)}{\partial c^x} \frac{\partial g^x}{\partial b^{Px}} \tag{9}$$

$$2.\ \ SMU^{x,Cx}_t = w^C \frac{\partial u^x_t(\cdot)}{\partial c^x} \left(1 + \frac{\partial g^x_t}{\partial b^x}\right) \tag{10}$$

To rephrase this assumption, homogeneity within the different groups k is assumed. In other words, individuals in each four groups are similar: parents with a child in education, parents with a child in the labor market, children in education, and children in the labor market. The only existing heterogeneity is that which exists between these groups. This formula emphasizes that SMU only depends on the marginal utility of consumption and transfer derivatives. While the transfer derivatives are already expressed in an empirically estimable manner, the marginal utility of consumption is, as such, not. To leverage this challenge, I apply the MPC approach proposed by Landais and Spinnewijn, 2021.

Assumption 1. *In this set-up, this approach requires the three following assumptions:*

1. *Individuals have CARA preferences of consumption.*
2. *Preferences are separable in* c, y *and* t*:* $\frac{\partial^2 u(c^w_{it}, y^w_{it}, t^w_{it}; \zeta_{it})}{\partial c \partial l} = 0, \forall l \in \{y, t\}$.
3. *The cost of using future assets at the margin to increase consumption today is higher for children than parents.*

Lemma 2. *Under Assumption 1, the re-scaled MPC ratio for children compared to parents is a lower bound estimate for the ratio of children's marginal utility of consumption to that of parents:*

$$\frac{\frac{\partial u^{Cx}(c_t, y_t; \zeta_t)}{\partial c}}{\frac{u^{Px}(c_t, y_t, g_t; \zeta_t)}{\partial c}} \geq \frac{\frac{mpc^{Cx}}{1 - mpc^{Cx}}}{\frac{mpc^{Px}}{1 - mpc^{Px}}} \equiv M_{tx}, \ \ with\ \ mpc = \frac{dc}{dy} \tag{11}$$

The ratio of children to parents MPC, denoted as M_{tx}, offers a conservative estimate for the ratio of children to parents' marginal utility of consumption. This inequality enables formulating a measurable lower bound for the ratio of social marginal utility. Taking the welfare weights on parents and children equal, this ration can be expressed as follows:

$$\frac{SMU_t^{x,Cx}}{SMU_t^{x,Px}} \geq \frac{M_{tx} \times \left(1 + (\partial g_t^x / \partial b^x)\right)}{1 + M_{tx} \times \left(\partial g_t^x / \partial b^{Px}\right)} \tag{12}$$

This finding highlights the significant role played by differences in consumption responses to income shocks between groups and of transfer derivatives in determining the disparity in social marginal utilities (SMUs). In other words, to identify a lower bound of the children-parents SMU ratio, it is sufficient to estimate the following key parameters: marginal propensity to consume of each group considered, the pass-through and the crowding-out effects. Moreover, extending the analysis to compare individuals aged 18-25 with those aged 25 and older, who are not directly linked to young adults, can be readily done. This would entail applying the same methodology to the new population being studied, with the pass-through effect set to zero[4].

Fiscal Externalities This paragraph aims to recall the empirical moments that needs to computed to recover the fiscal externality of each policy. Overall, one could think about the fiscal externality following the potential outcome framework, by comparing the difference between the potential government revenue in the status quo and potential government revenue when the benefit is changed.

Fiscal Externality Transfer to Parents.– Their are two main sufficient statistics needed to recover the fiscal cost of a change in transfer to parents. First the labor supply responses at the time of the benefit change: $\partial \mathbb{E}\left(y_{it}(\zeta_{it})\right) / \partial b_t^P$ and second, the labor supply responses a $t' > t$ due the wealth effect $\partial \mathbb{E}\left(y_{it'}(\zeta_{it'})\right) / \partial b_t^P$.

Fiscal Externality Transfer to Children in Labor Market.– Following Equation 6, an increase in transfer for non-student young adults might distort both the education decision and the labor supply. First, one need to measure this education distortion $\partial(1-S)/\partial b^{Cw}$. Second on must estimate if the future taxable labor income of the pivotal individual might be lower because of depending on their return to education and if yes just by how much $\mathbb{E}\left(R_{it} \middle| (\partial s(e_{i1})/\partial b^w) = -1\right)$.

Fiscal Externality Transfer to Children in education.– Following Equation 7, an increase in transfer for students might distort the education decision. The first empirical moment needed is therefor how much the share of individual doing education is altered by a change in transfer $\partial S / \partial b^{Ce}$. Second, due to return to education, the pivotal individuals should have

[4] Comparing children to 25+ individuals who are not their parents leads to the study of the following expression: $\frac{SMU_t^{x,Cx}}{SMU_t^o} \geq M_{tx} \times \left(1 + \frac{\partial g_t^x}{\partial b^x}\right)$

a large inter-temporal income compare to the situation without education, which in turns could lead to higher taxes. A moment need is then the return to education of those pivotal individuals $\mathbb{E}\left(R_{it}\middle| (\partial s(e_{i1})/\partial b^e) = 1\right)$.

3 Institutional Background and Data

3.1 Institutional Background

Motivated by the conceptual framework, this paper leverages policy reforms to estimate both the benefits of consumption smoothing and the fiscal costs associated with transfer policies. On one hand, the estimation of consumption smoothing benefits takes advantage of one-time transfers implemented by the government. On the other hand, insights into fiscal externalities are derived from reforms in scholarship and work benefits.

On shot Assistance As we seek to compare the consumption smoothing benefits associated with an increase in transfers targeting young adults versus older individuals, this paper capitalizes on the uniqueness of the French transfer policy. In addition to the prevalent minimum welfare assistance or in-work benefit policies, the French government frequently offers one-time payments targeting various segments of the population, at times segregated by age. The specific welfare benefits outlined below are of particular interest to this study.

Allocation Rentrée Scolaire. Parents with children aged 6 to 18, whose income falls below a specified threshold, are eligible for a specific welfare benefit known as the "Allocation de Rentree Scolaire" (ARS). This means-tested, one-time payment is made every year in August, just before the start of the school year. Its main objective is to help parents cover the costs associated with the beginning of the new school year. The benefit amount increases with the child's age and the number of children in the household, while it decreases as the household's income level rises. For a single child, eligible households receive between 350 and 450 euros. The income threshold for eligibility is reasonably high and rises with the number of children. For instance, in 2021, the maximum income for eligibility with two children is 31,723 euros, slightly above the median income in France, making it accessible to a broad range of parents.

Covid-19 one shot transfer. In France and around the world, the Covid-19 crises has increased financial pressure on young adults, and rekindled the debate on the expansion of social assistance for this age-category. In response to they growing financial fragility, the French government implemented in 2020 two one-shot transfers targeting young adults living alone. These two transfers offer the advantage of being unanticipated as they were decided upon quickly in response to the crisis. In addition, both transfers were announced only a few weeks before the date of receipt, and it remained uncertain who the actual eligible recipients would be. The first noteworthy transfer was disbursed on June 25, 2020, to all individuals under 25 who were eligible for housing benefits (APL). They were entitled to receive 200 euros. The second substantial transfer took place on November 27, 2020, and was announced to be targeting students with a grant and young adults receiving housing benefits, with each recipient receiving 150 euros. However, in contrast to the initial announcement, only 10% of students with scholarships have actually received the transfer. On the other hand, a significant majority APL recipients have receive the transfer. Note that the APL is a mean-tested transfer that is given to any individuals younger that 30 years old, leaving outside their parents house, and with an income below a threshold. Therefore, the recipients of this one-time transfer primarily consist of students living independently and low-income workers.

3.2 Data

This paper rely on two main sources of data.

Bank Transaction Data The primary dataset consists of granular bank transaction data sourced from one of the largest retail banks in France, Credit Mutuel. Those data emanates from clients at the French National retail bank CIC, a Crédit Mutuel Alliance Fédérale subsidiary. The CIC caters to all types of customers, with agencies spread out nationwide. The sample selection procedure was designed to achieve both a high level of representativeness of the overall population and the anonymization of individuals. Importantly, each individual selected in the primary sample uses the CIC as their main bank. Interested readers could refer to **Fize2021** for a more detailed description of the sampling procedure. The resulting dataset contains information on about 550,000 individuals gathered into approximately 300,000 households. In addition, of significance for the scope of this paper, the dataset includes slightly over 43,000 individuals aged between 18 and 24 years. The data is structured as follows. The pseudo-anonymized data contains particularly granular banking information at the household level. It encompasses daily records of each card expenditure, cash withdrawals, check payments, and wire transfers, as well as monthly updates of current accounts, savings accounts, equities, life insurance, and household debts. Notably, both card expenditures and incoming transfers are labelled by the bank. Card expenditures are labelled with the Merchant Category Codes (MCC), enabling an extremely fine expense breakdown, while incoming transfers are classified into five categories: wages, social benefits, unemployment benefits, pensions, and others. Finally, the dataset contains some demographic characteristics of the account holder, including gender, age, marital status, department, and socio-professional category (PCS).[5]

Survey ENRJ The French Statistical Office carried out this survey in 2014. It aims to identify in detail the resources of young people by questioning 5,000 young people and their parents. Resources are categorised by parental support, government assistance and income at a very granular level. This survey allows to overcome the main shortcoming of bank transaction data, namely non-financial assistance from parents to their child (i.e. in-kind assistance or direct financing of housing).

4 Descriptive Evidences

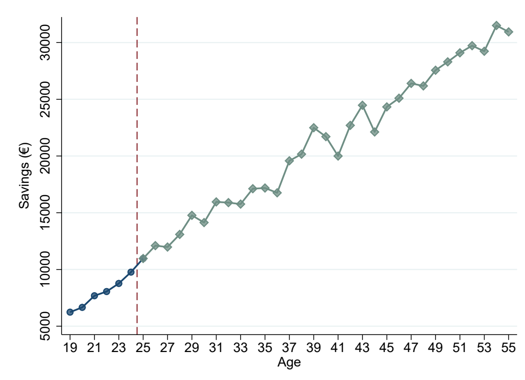
This paper addresses the context of France but it is worth emphazising that the situation of young adults is on average very similar in the other OECD countries[6]. In France, the monetary poverty disproportionately affects young people. For instance, in 2017, 20% of 18-29-year-olds had a monthly income below 1,041 euros, compared to 14% for the rest of the population. This disparity has widened over the past 40 years, with the poverty rate halving for those over 65 while doubling for those under 25 (Damon, 2016). However, measuring poverty rates for youth is challenging due to various factors, including parental support not being accounted for. Banking data can therefor help mitigating this issue by considering all resources available to young people. Its reveals several stylized facts that confirms the trend suggested by the poverty rate. Firstly, Figure 1a illustrates that young people have significantly lower savings than their elders, which might contribute to make them more vulnerable to unexpected expenses as suggested by the Figure 1b. They are also significantly more likely to be overdrawn (Figure 1c). Finally, these financial difficulties do not appear to stem from poor asset management. Figure 1d shows that young people's expenses are largely concentrated on essential and durable goods, with a relatively low share allocated to leisure, which substantially increases with age.

[5]PCS are defined as "classifying the population by a combination of professions (or former profession), hierarchical position and status (salaried employee or otherwise). It comprises three embedded levels of aggregation : the socio-professional groups (8 items) ; the socio-professional categories (24 and 42 items) ; the professions (486 items)". In the data, each individual is classified following the later and most extensive aggregation level.

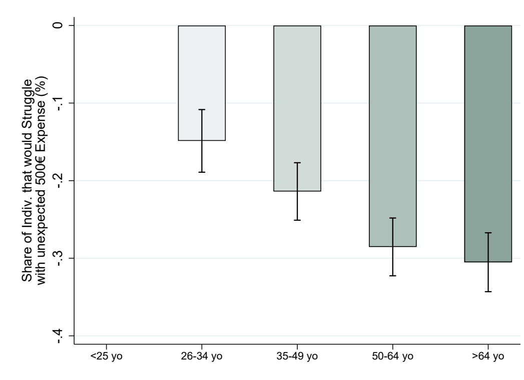
[6]According to Eurostat, in 2021 the poverrty rate among 18-24 years old individuals was 18.4% in 27-countries Europe, and 17.5% in France

Figure 1: Descriptive Evidences - Financial Fragility

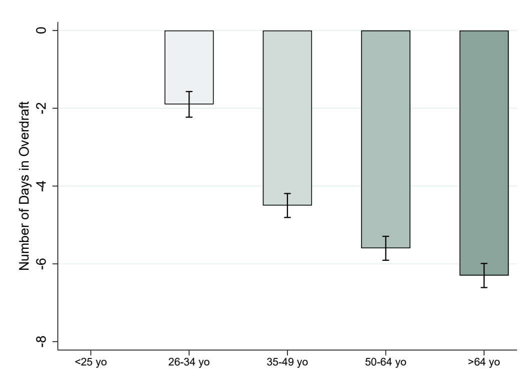
(a) Savings



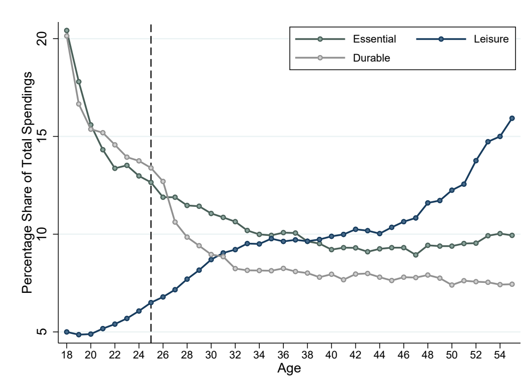
(b) Unexpected Expenses



(c) Number of Days in Overdraft



(d) Consumption Profile



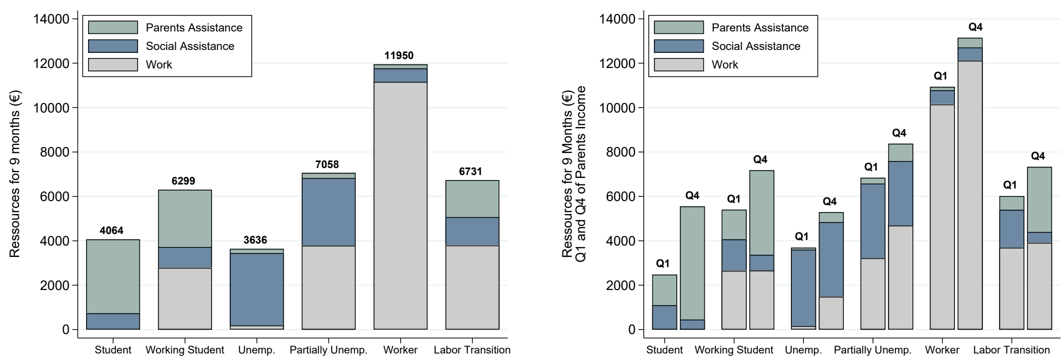
Notes: The Figure 1a plots the savings from both savings and current account found in the banking data. In the Figure 1b I take advantage of the DREES Survey on individual opinions that ask whether an individuals would struggle to cope with unexpected 500 euros expense. I regress the age category on a dummy that is one if the individual would struggle, zero if not. 18-24 years old individuals are the reference age category, with an average of 75%. The same methodology is used for constructing the Figure 1c, but this time using the bank data with the outcome being the number of days in overdraft in the year. Finally I decompose the consumption in the Bank data in 5 main categories. The Figure 1d plots the age profile of the share of consumption dedicated to leisure, durable and essential.

However, despite these financial challenges young adults appears to receive very little social assistance compared to their elders. For instance they are excluded from the French minimum benefits (RSA). Hence, their income relies more on parental support than social aid, with parental assistance averaging six times greater than government aid for students. This observation masks significant disparities, as parental aid is strongly correlated with parental income. A young person whose parents are in the highest income quartile receives, on average, three times more parental assistance than one whose parents are in the lowest quartile. Additionally, although social aid is higher for the latter group, government falls far short of compensating for these differences in informal assistance resulting in student for high income family having income more than 2 times larger that student with parents in the lowest income quartile. Finally, young people from lower-income families are also disadvantaged in terms of pursuing further education.

Figure 2: Young Adults Resources

(a) All

(b) By Quartile of Parents Income



In summary, young people face greater financial difficulties than any other demographic group. This population relies heavily on parental financial support, which varies significantly depending on parental income. Financial assistance is insufficient and fails to close the income gap between young people from affluent families and those from more disadvantaged backgrounds.

5 Consumption Smoothing Benefit

This section evaluates the consumption smoothing gain of an increase in transfer targeting parents vs. children. Since the social marginal utility of transfers is fully captured by the marginal utility of consumption and transfer derivatives, this section analyzes each of these two components consecutively. It finishes by mapping them back into the model.

5.1 Marginal Propensity to Consume

As detailed in Section 2.3, the ratio of the marginal propensity to consume for children relative to parents provides a conservative lower bound for the ratio of marginal utility of consumption of children relative to parents. Consequently, a greater disparity in MPC between parents and children results in a larger difference in the social marginal utility of increasing transfers to parents versus children. The following subsection details the empirical estimation of MPC.

5.1.1 Estimation

The Marginal Propensity to Consume is defined as the change in consumption resulting from an exogenous income shock. To identify the MPC for both parents and children, I assess the changes in consumption following two one-time transfers, one directed towards children and the other one towards parents. I employ a difference-in-difference methodology to estimate the consumption responses separately for these two transfers.

Treatment Group Construction. The two transfers that I consider are the ARS (Allocation de Rentrée Scolaire) for parents and the one for children is the "Prime exceptionnelle." The bank transaction data contains details on all income transfers, including the exact amount, date of receipt, and a label indicating whether it originates from the government. By cross-referencing this information, I can accurately pinpoint the individuals who have received the respective one-time transfer in question. In the data, about 20,000 individuals received ARS, and about 3,000 the "Prime Exceptionnelle". (to do: Table in Appendix, control and treated) Still, there is no clear control group because the transfer was not randomly allocated. To address this, I use nearest-neighbour matching to construct a reliable control group.

Control Group Construction. I identify counterfactuals by using the nearest neighbour matching on pre-event characteristics. This matching is implemented following two steps: I first exactly match every treated individual and potential controls on demographics characteristics of primary importance. Then, based on financial variables, I compute the Mahalanobis distance between the remaining potential control and the treated individuals. On the one hand, the exact matching is performed on slightly different demographic variables for children and parents, given the disparate characteristics defining eligibility for both transfers. For the former, exact matches are made on age categories (18, 19-20, 21-22, 23-24), being a student or not, and being employed or not. For the latter, I match exactly treated and control according to the age category (25-34, 35-44, 45-55), the number of children, the socio-professional broad categories[7], and the number of adults in the household. On the other hand, the matching based on Mahalanobis distance is calculated from the same pre-event financial variables regardless of age group: the average current and saving accounts in the months prior to the event and incoming transfers per week for the 6 weeks preceding the treatment.

[7] The broad decomposition of PCS is made following the French INSEE 8 categories: Farmers; craftsmen and entrepreneurs; managers and intellectual professions; employees; workers; retired; without professional occupation.

Difference-in-Differences Regression. Once both treated and control individuals are identified, I rely on a DID analysis on weekly consumption that allows to recover the MPC of parents and children. The event study is written as follows:

$$C_{it} = \alpha_i + \beta_1 \mathbb{1}_{t>t^*} + \beta_2 \text{Treated}_i \times \mathbb{1}_{t>t^*} + \sum_{v=0}^{\bar{v}} \lambda_v V_{it,v} + \varepsilon_{it} \tag{13}$$

where C_{it} is the consumption of a individual i at time t which is the calendar week, that range from -5 to 5. Week $t^* = 0$ corresponds to the week of the transfer receipt. α_i^k is an individual fixed effect. The parameter γ^k captures the time effect surrounding the treatment, comparing consumption before and after the treatment. Weekly incoming transfers are categorized into $\bar{v}$ bins. The variable $V_{it,v}$ is equal to one if the weekly incoming transfer falls within bin v, and zero otherwise. Specifically, incoming transfers are categorized into bins of size of 50 euros for amounts between 0 and 2500 euros, and 100 euros for transfers exceeding 2500 euros. The coefficient of interest is β_2. It allows to recover the Marginal Propensity to Consume out of the considered transfer. Essentially, β_2 corresponds to the Difference-in-Differences estimate, which quantifies the difference in consumption between the control and treated groups before and after the treatment. When multiplied by the number of weeks following the treatment (in this case, five weeks) and scaled by the average transfer amount received, β_2 yields the MPC for the analyzed transfer. It can be formalized by the following expression:

$$MPC = \frac{5 \times \beta_2}{TransferAmount}$$

This event study is performed separately for the two transfers of interest, thereby enabling the distinct estimation of parents and children MPC. Standard errors are clustered at the individual level.

Identification Assumption. In the framework of a difference-in-differences analysis, the identifying assumption is the well-known parallel trend assumption. This assumption asserts that the estimated DID parameter β_2 identifies a causal treatment effect on the treated (ATT) when, in the absence of treatment, both the treated and control groups consumption would have evolved following parallel trend. In this context, the main threat to this assumption arises when the treatment in anticipated. To assess the validity of the parallel trend assumption, one approach is to directly examine whether it holds in the period immediately preceding the treatment. Such a test can be done by performing the following regression:

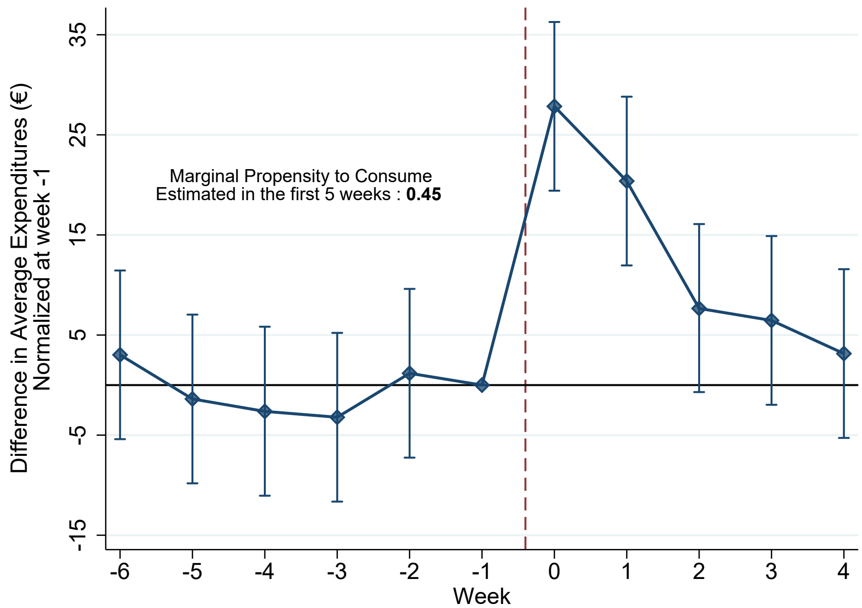
$$C_{it} = \alpha_i + \sum_{\substack{t'=-5 \\ t' \neq -1}}^{5} \beta_{t'} \text{Treated}_i \times \mathbb{1}_{t=t'} + \sum_{v=0}^{\bar{v}} \lambda_v V_{it,v} + \varepsilon_{it} \tag{14}$$

The $\beta_{t'}$ coefficients corresponding to the pre-treatment weeks ($t < 0$) serve as a means to assess the validity of the common trend assumption. Specifically, the statistical significance of any of these coefficients signals a potential violation in the common trends hypothesis. Section 5.1.2 delves into the extent to which this paper's analysis adheres to this identification assumption.

5.1.2 Results

Children MPC. Regression 13 and 14 are conducted on the treatment group of children benefiting from the "Prime Exceptionnelle" government transfer. The re-scaled DID estimate of the regression 13 enables the computation of children MPC, while the regression 14 allows the retrieval of the weekly consumption difference between the treated and control groups around the treatment period. This analysis provides insights into the consumption dynamics and assesses the validity of the parallel trend assumption. The resulting plot is the following:

Figure 3: Children MPC.



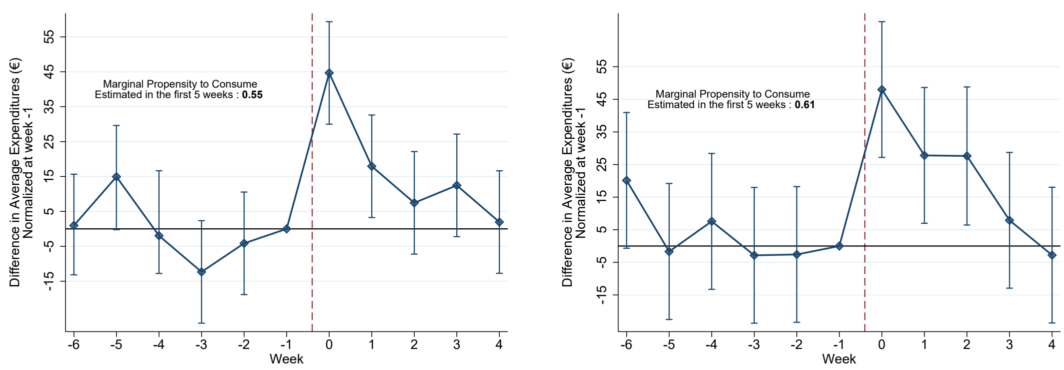
Notes: This Figure plots the interaction between weeks and the treatment dummy coefficients following the regression 14. The treated group is composed of all 18-24 individuals who received the 150 euros November transfer. The control group is built using the nearest-neighbour matching described in Section 5.1.1. Week 0 denotes the week of the transfer receipt, and Week -6 is the reference week. The standard errors are clustered at the individual level. The MPC is computed using the Difference-in-Difference regression 13.

This Figure illustrates the weekly consumption difference between treated and control individuals. It reveals a sharp increase in the first week following the treatment, followed by a gradual decline in the subsequent two weeks, eventually stabilizing around zero in weeks 3 and 4. The consumption patterns in the weeks preceding the treatment assess the validity of the parallel trends assumption. Notably, the consumption differences between treated and control groups for all weeks before the treatment are non-statistically different from zero. Under the parallel trend assumption, the Difference-in-Differences analysis provides a causal estimate of the treatment, revealing a significant MPC of 45% with a standard error of 0.10. This high MPC estimate aligns with prior evidence suggesting that children lack liquidity and face binding credit constraints.

The treated population studied so far is composed of all young adults receiving APL and some student receiving a scholarship. APL is mean-tested, meaning that workers receiving the transfer are low-income workers. However, children are receiving the APL, and therefore the Prime Exceptionnelle, regardless of their parents income, which could lead to rich student receiving the transfer. Policy-markers might decide to narrow down the sample of children eligible to an increase in benefits. Usually, transfer are targeting student based on parents income, while workers are targeted throughout their wage. Pursuing on that line of heterogeneity I compute the MPC of both low income workers and student with low-income parents. Low-income workers are characterized as any workers receiving the transfer. For students, I alleviate the richness of bank transaction data to identify students receiving a scholarship. As scholarship is only attributed if parents have a low income, it can be directly used to constructed the treated group of low-parents income students. Finally, I replicate the DID analysis on both treated group separately to compute group-specific MPC. The following plots are presetting the results.

Figure 4: Children' MPC Heterogeneity

(a) Low Income Workers (b) Low Parents Income Student



Notes:

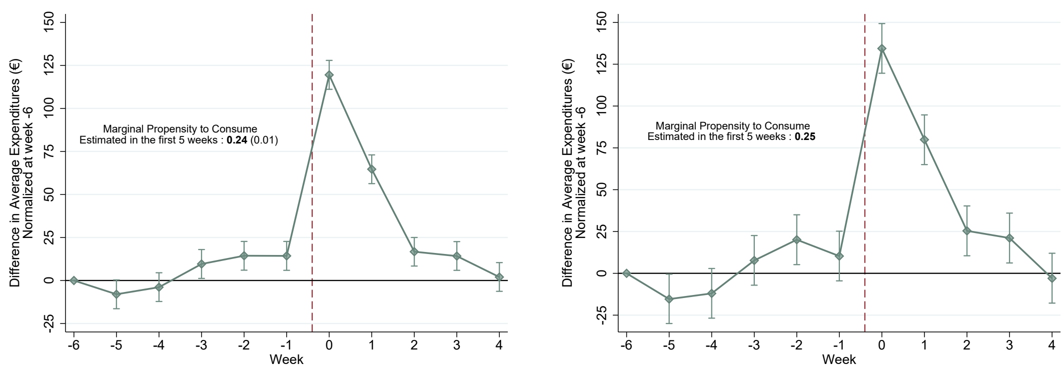
Both students with low-income parents and low-income workers exhibit significantly higher MPCs compare the 45% average MPC. Indeed, the DID analysis results in an MPC of 55% for low-income workers and 61% for students with a grant. These MPC values are notably high, implying a potentially very high social marginal utility for transfers targeting these specific populations.

Those results seems to advocates both for high utility if transferring to children and an amplified effect when exercising targeting. However, it's important to note that MPC alone does not provide a comprehensive understanding of the disparity in the welfare effects of age-based policies. To gain meaningful perspectives, children's MPC must be compared to that of parents.

Parents MPC. Let's now turn to the computation of parents' MPC. I apply the same methodology, but this time, I analyze the ARS transfer, which targets parents. While one could argue that parents are defined as individuals with a child between 6 and 18, as opposed to the 18 to 24-year-olds proposed in the model, it's crucial to note that conceptually, we aim to compare younger to older individuals. Therefore, the precise definition of a parent matters for the crowding-out estimate, directly impacting children's social marginal utility. However, in the case of computing "parents' SMU," we can argue that we can relax the age of the children and instead focus on a broader age category, namely the 25-55 age category, as explained in Section 2.2. Nonetheless, to address this concern, I perform two analyses. The first analysis focuses on treatment recipients with at least one child between 15 and 18 years old, which aligns more closely with the model's definition. The second analysis encompasses the entire sample of treated individuals. The following graphs present the results for both samples:

Figure 5: Parents' MPC

(a) All Sample | (b) 15-18 Sub-Sample



Notes: These Figures plot the interaction between weeks and the treatment dummy coefficients following the regression 14. In Figure C.1b, the treated group is composed of ARS recipient with at least one child between 15 and 18 years old, while Figure C.1a study all parents who received ARS. The control group is built using the nearest-neighbour matching described in Section 5.1.1. Week 0 denotes the week of the transfer receipt, and Week -6 is the reference week. The standard errors are clustered at the individual level. The MPC is computed using the DID regression 13.

These Figures display similar consumption patterns to the children's Figure 3: a consumption jump in the week following the treatment followed by a gradual decline in the subsequent weeks, stabilizing at a level that is not statistically different from zero four weeks after the treatment. However, the computed MPCs are nearly half as low. The MPC is estimated to be 24% in the full sample and 25% in the restricted sample. The results for both samples are highly consistent, suggesting that the age of the child matters little and that the outcomes would likely be similar if the treatment were extended to parents with 18 to 24-year-old children.

Discussion. Children MPC is found to be 1.6 time higher than parent's MPC, highlighting a distinct age-based pattern in MPC. This finding aligns with prior research on the life cycle of MPC. For instance, when not controlling for any specific characteristics, Jappelli and Pistaferri, 2014 identified a slight decreasing trend in MPC across age groups, with notably higher MPC observed among individuals aged 18-30. This age-based difference in MPC might have been even more pronounced if the age category had been restricted to 18-24, as suggested by the results of Carroll et al., 2017. The latter study unveils a distinctive U-shaped pattern of MPC with age. This is characterized by a substantial MPC between 18 and 24, followed by a noticeable decline in subsequent years, ultimately settling to an average MPC lower for individuals aged 25-55 compare to 18-24. Theoretically, the ratio of MPCs provides a lower bound for the ratio of marginal utility of consumption, and as a result, captures a substantial portion of the ratio of social marginal utility. Furthermore, the model underscores the positive correlation between the MPC ratio and the social marginal utility ratio. Therefore, the significant contrast between parents' and children's MPC suggests a potentially substantial difference in the social marginal utility of the two age-based policies. While the transfer derivatives are still required to draw definitive conclusions about the disparities in social marginal utility, the MPC estimates hold significant importance in the social marginal utility recovery process. This underscores the legitimate need for robustness analyses in this context.

Robustness. The robustness of the results can be called into question on two fronts. First, one could questioned the external validity of the results as 2020 has been hit by the Covid Crisis. To address this concern, I conducted a replication of the DID analysis for the ARS transfers in 2019 and 2021, which are sent annually in August. As depicted in Figure A.1, the MPC coefficients exhibit remarkable consistency across the years, suggesting that the Covid crisis did not significantly affect these estimates. Second, if MPC is significantly decreasing with the amount received, one could be concerned by the difference of MPC between children and parents to be entirely driven by the difference in amount received. Parents typically receive an average of 581 euros, while children receive significantly less, around 150 euros. To address this concern, I took advantage of the variation in transfer amounts received by parents to compute the MPC in different subsamples based on the amount received. I conducted three difference-in-differences regressions, one for parents receiving around 500 euros, another for those receiving 1000 euros, and a third for those receiving 1500 euros. The results displayed in Figure B.1 suggest that consumption responses are proportionally increasing with the amount received. This finding alleviates the initial concern of potential inflation of MPC age heterogeneity due to differences in the amounts received.

5.2 Transfer Derivative

The interplay between private family transfers and government assistance lies at the core of the altruism literature. A key issue is the understanding of the extent to which the expansion of the welfare state influences the dynamics of support within families. It is commonly assumed that in welfare states with generous public support, family members may feel less bound to provide mutual support, potentially reducing private family transfer. This phenomenon is commonly referred to as the "crowding out" effect (See Bengtson, 2018 or Brandt and Deindl, 2013 for a review). Conversely, if government transfers to parents rise, a share of these transfers may be passed on to children through parents' private transfers - I refer to this mechanism as the "pass-through". The model flexibly align with those statements by allowing parents to adjust their own private transfers in response to a change in government transfers. The model directly captures the fact that the social marginal utility of transfer to children decreases with crowding out, while the social marginal utility of transferring to parents increases with pass-through. These two parameters are, therefore, of primary interest to recover the welfare effect of targeted policies. However, while the literature has extensively studied the motive of giving (for instance Albertini and Kohli, 2013 and Kohli and Künemund, 2003), the estimates of pass-through and crowding-out remain scarce and can vary significantly across different policy regimes (Albertini and Kohli, 2013). The model provides flexibility in the underlying giving motives, allowing crowding out and pass-through effects to be fully determined empirically rather than constrained by specific modelling assumptions. The exercise of this section is to provide empirical evidences that can then be mapped back to the computation of social marginal utility provided by the model. This section first explores the opportunities afforded by the strengths of bank data and subsequently presents the results.

5.2.1 Methodology

One significant challenge in estimating transfer derivatives revolves around the limited availability of data on private transfers between parents and children. Consequently, the estimates found in existing literature heavily rely on survey data, with most of these findings arising from cross-sectional analyses. These analyses typically involve comparing levels of parental transfers of different children at time t. Essentially, this consists of computing the correlation between parental transfers and children's income to investigate crowding-out effects, as well as the correlation between parental transfers and parents' income to explore pass-through effects, all while controlling for some demographic characteristics (for instance Altonji et al., 1997 and Cox and Jakubson, 1995). However, the use of survey data might introduce potential measurement errors, while cross-sectional analysis results comes with potential heavy omitted variables bias. The emergence of bank transaction data opens up an opportunity to address this issue effectively. Not only this data provides detailed information about individuals' incomes but also allows precise tracking of the amount and timing of financial transactions between parents and children. Leveraging this advantage, Andersen et al., 2020 studied the replacement rate provided by parents in the aftermath of children's job loss. They found that parents replace around 7 cents of the marginal dollar lost. However, the study of the welfare effect of government transfer requires a focus on an increase in income rather than a drop. Importantly, parents' responses to positive vs. negative income shocks are not necessarily symmetrical. To estimate the two transfer derivatives of interest I rely on two different methodology.

The first methodology relies on the full-sub-sample of 18 to 24-year-old individuals for whom the parents are also in the bank transaction data. The resulting subsample is a panel of 5,000 children followed over the month. This data set provides information on the monthly child's income, the monthly amount of parental transfers[8], and the monthly parent's income. For each individual, I compute the monthly change in children income, the monthly change in parents' transfers and the monthly change parent's income. I then take advantage of those individual variations by regressing the change in parent to child transfer ($\Delta Y_{it} = Y_{it} - Y_{it-1}$) on children fixed effects (α_i), time fixed effects (α_t) and first the change in children income (crowding-out) and second on parent's income variation (pass-through) ($\Delta X_{it} = X_{it} - X_{it-1}$). This can be written as follows:

$$\Delta Y_{it} = \alpha_i + \alpha_t + \beta \Delta X_{it} + \varepsilon_{it} \tag{15}$$

When ΔX_{it} is the change in children income, the coefficient β identifies the crowding-out and when ΔX_{it} is the change in parents income it identifies the pass-through. While this methodology may not provide a causal estimate of transfer derivatives as the income variation is not exogenous, it offers a higher granularity level than the conventional survey-cross-sectional approach. This method allows for tracking the same individual over time and measuring how variations in transfers received relate to their own income changes, as well as changes in their parents' income. This stands in contrast to the traditional cross-sectional approach, which recovers transfer derivative estimates solely by comparing children with each other. Finally, it's worth noting that in the model, a change in income resulting from government assistance or work should theoretically have the same effect on transfer derivatives. Therefore, examining the changes in parent-to-child transfers in response to income changes provides valuable insights into how these transfers respond to changes in government assistance.

[8]Once parents and children have been identified and linked, I cross-reference the timing and amount of parents' outgoing transfers with the children's incoming transfers. When I find an exact match regarding both amount and timing, I classify this transaction as a parent-to-child transfer.

In the second methodology, I take advantage of the multiple discontinuities in the French scholarship eligibility rule to compute the crowding-out effect. The French grant is allocated to one-third of the students. The program offers eight tiers of grants, ranging from 150 to approximately 600 euros, with each tier seeing an increase of around 70 euros compared to the previous one. The grant level, and consequently the amount awarded, is determined by a function of parental taxable income at $t-2$ and a composite score that considers the number of siblings and the distance between the parents' residence and the university the student intends to enroll in. The eligibility criteria creates multiple discontinuity (see Figure C.1 in Appendix). This context offer a great opportunity to recover a causal estimate by performing a regression discontinuity design. However, in the Bank data, the composite score is - for now - partially identified, which prevent me from performing this analysis. I therefor perform the following OLS regression:

$$Y_i = \alpha + \sum_{k,k\neq 0} \beta_k S_{ik} + X_i'\gamma + \varepsilon_i \tag{16}$$

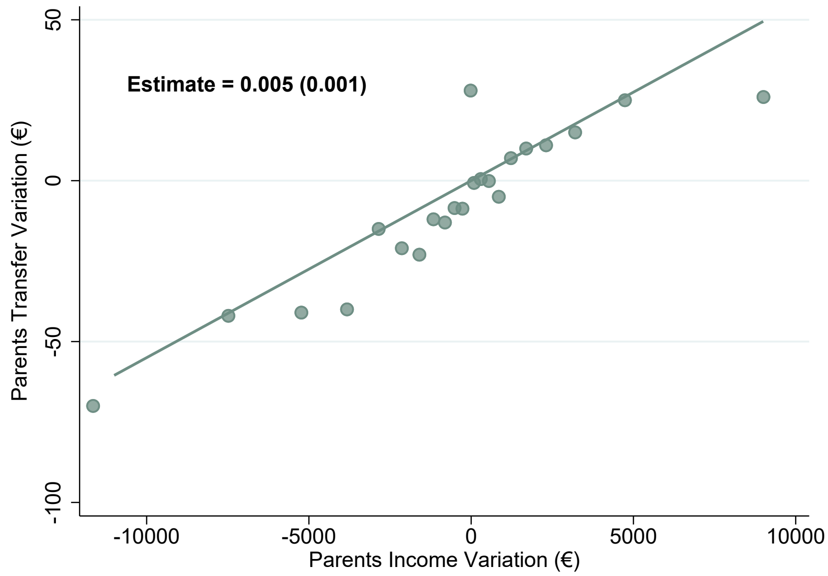
Where Y it the monthly parent-to-child transfer, S a dummy for each k level (with 0 as the reference) and X the parents income in t-2 and the identified composite score. The OLS coefficient β divided the difference in parents transfer for each grant level. Rescaled, it gives the crowding-out effect. A threat to identification of a causal effect is the endogenity of the amount of scholarship received. Due to measurement error in the composite score, this regression does not allows a causal identification. However, the bias introduced is expected to be small.

5.2.2 Results

Building upon the previously described methodology, I estimate the two essential transfer derivatives required to compute the social marginal utility of age-based policies: the pass-through effect and the crowding-out effect.

Pass-Through The pass-through is obtained by calculating performing the regression 15. The following graph depicts the associated scatter plot, with parents' income variations divided into 20 equally sized categories based on the number of observations.

Figure 6: Pass-Through Estimate

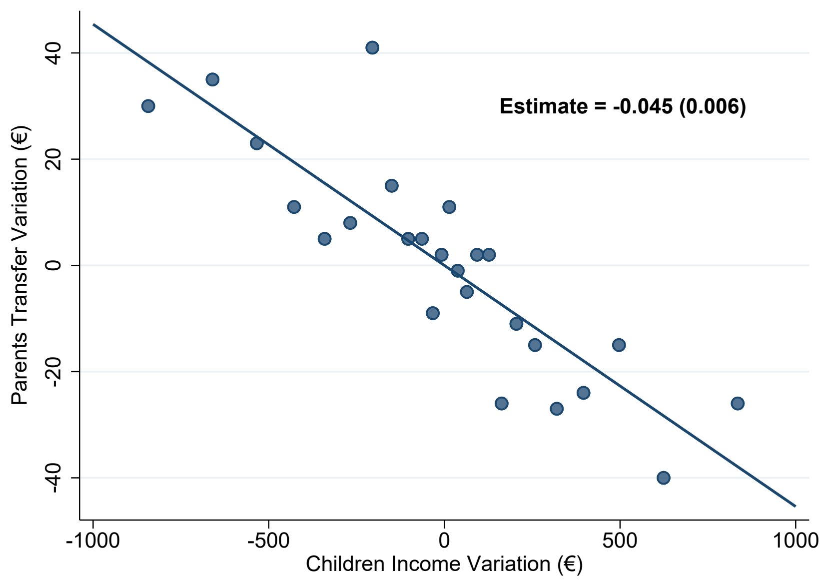


Notes: This scatter plot shows the change in parents' private transfers to children in relation to changes in monthly parents' income. The observations are categorized into equal-sized groups based on parents' income changes.

This Figure displays a linear relationship between the change in parent-to-child transfers and the change in parents' income. Regardless of the magnitude of parents' income changes, it appears that their corresponding private transfer changes are proportional: a one euro increase in parents' income corresponds to a 0.005 euro increase in parents' private transfers to children. The clear increasing linear pattern suggests that a share of the increase in government transfers to parents will be passed on to children through parental transfers. However, the amount passed on is relatively modest, with a pass-through effect estimated to be close to 1%. This result aligns with the significant finding of Altonji et al., 1997, who identified a 4% pass-through effect.

Crowding-Out Let's now turn to the transfer derivative with respect to children's income change. The methodology is the same as for the pass-through calculation, with the exception that now the variation in transfers from parents to children is regressed on variations in children's income.

Figure 7: Crowding-Out Estimate



Notes: This scatter plot illustrates the variation in parent-to-child transfers as a function of changes in monthly children's income. The data points are grouped into equally sized categories based on the changes in children's income. Children's income is defined as the total monthly incoming transfer, excluding parental transfers.

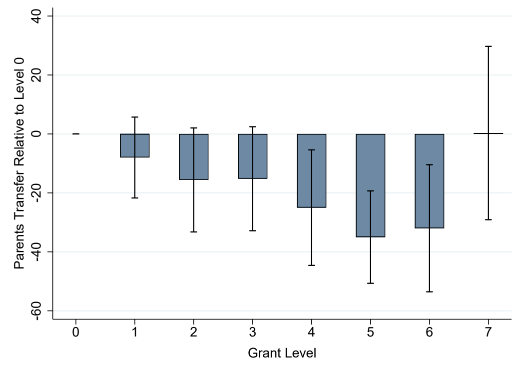
This Figure illustrates a linear and decreasing relationship between changes in parent-to-child transfers and changes in children's income. However, it also suggests a relatively low responsiveness of parental transfers to variations in children's income. The slope of the line indicates a modest crowding-out effect, which is estimated at 4.5%. This result is consistent with findings from cross-sectional survey analyses. For example, Altonji et al., 1997 found a crowding-out effect of 7%, and Cox and Jakubson, 1995 observed that a one-dollar increase in government transfers led to a maximum reduction of 12 cents in parent-to-child transfers. Importantly, Figure 7 does not reveal any distinct change in slope at the 0 children's income change, suggesting that the effect of children's income increase and decrease on parental transfers is symmetric. This aligns with the causal effect identified by Andersen et al., 2020, which indicates that a decrease in children's income leads to a 7% increase in parental transfers.

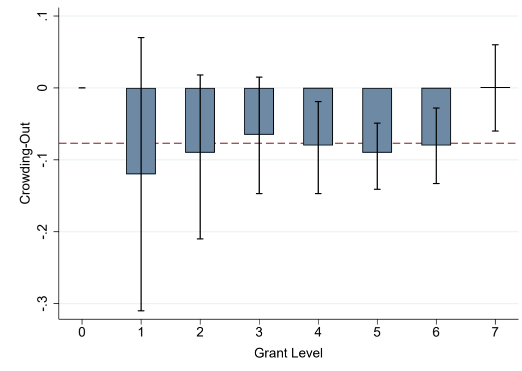
Following the second methodology the Figure 8a plots the β estimates of the regression 16 for each grant level. It shows the parent-to-child transfer for each grant level in comparison to the level 0. The Figure 8b exhibit the computed crowding-out for each level by rescaling β by the difference of grant amount received in comparison the the level 0.

Figure 8: Crowding Out, Regression 16

(a) All Sample

(b) Crowding-Out



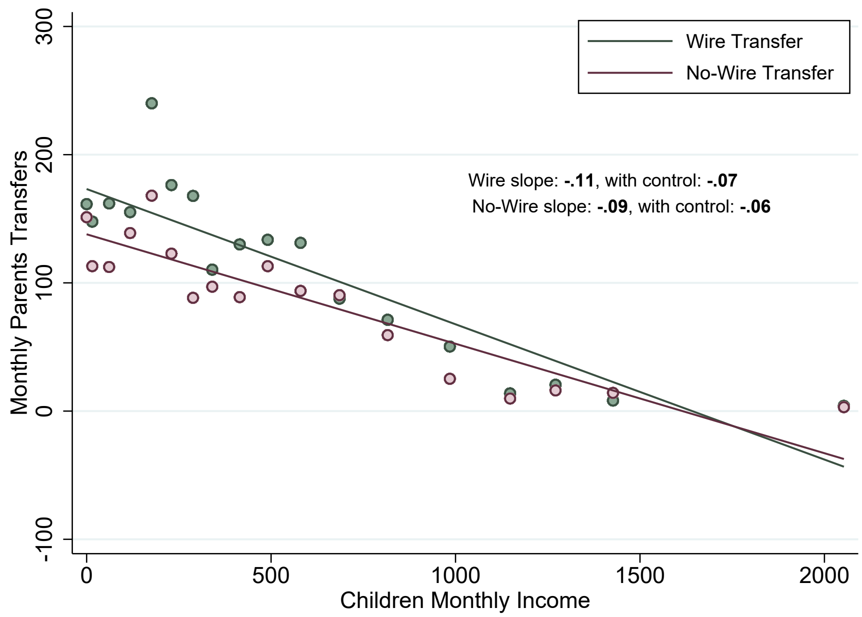


Notes:

Consistent with previous results, I find a decrease in parental transfers as grant levels increase. However, unexpected outcomes are observed for the final grant level, primarily stemming from limited observations and influential outliers. The average estimated crowding-out remains consistent at 7.5%, aligning closely with previous findings.

Robustness - Bank transaction data limitations. Bank data has inherent limitations in that it only provides access to recorded bank transactions. Yet, some parental assistance may take the form of in-kind support or financial aid that does not necessarily pass through the children's bank accounts, such as covering rent payments. To address this potential limitation, I use the ENRJ survey, in which parental assistance encompasses both wire and non-wire transfers. Capitalizing on the ENRJ survey's comprehensive insights into the types of assistance parents provide to their children, I classify each form of assistance into two distinct categories: wire transfers and non-wire transfers. Subsequently, I apply the survey's cross-sectional approach, comparing children's transfer-income levels for two types of transfers. The purpose of this analysis is twofold. Firstly, it enables verifying whether the crowding-out effect identified in the survey using the cross-sectional approach aligns reasonably well with the results obtained from the bank transaction data. Indeed, while the panel feature of bank data should yield more credible estimates, finding significantly different results in the cross-sectional analysis could raise concerns about the robustness of the findings. Secondly, this approach enables measuring to what extent accounting for parental assistance that is not captured by bank data affects the estimate of transfer derivatives. The following figure plots parent-to-child transfers - wire and non-wire - by children's monthly income ventile.

Figure 9: Crowding-Out Wire VS No-Wire



Notes: Children are classified into ventiles based on their monthly income, and parent-to-child transfers are categorized into two groups: wire and non-wire transfers. This plot displays the average monthly parent-to-child transfers broken down by ventile of children's income. The two lines displayed represent the linear approximation of the correlation between these two transfer categories and children's monthly income. The slopes of both lines are first computed without controlling for parents' income and then computed while controlling for the parents' income associated with each income bin.

First, this Figure offers reassuring results concerning the primary objective of assessing robustness. When examining the crowding-out effect of wire transfers in the cross-sectional data, as indicated by the slope of the green line, we observe a value of -11%, which is 5% higher than the estimate derived from bank transaction data. However, this relatively steep slope is largely driven by the correlation between parental transfers and parents' income. To address this influence, I compute the slope while controlling for parents' income, resulting in an estimate of -7%. This adjusted estimate aligns precisely with the results obtained from bank transaction data. Second, this Figure provides insights into the unaccounted portion of bank transaction data, specifically parental non-wire transfers. The slope of non-wire transfers appears to be quite similar to wire transfers and, if anything, slightly less steep. As Figure A illustrates, this steepness is attributed mainly to rent payments. Typically, rent payments are either entirely covered by children or parents and unusually shared between them (see Figure B). Intuitively, rent payment responses to an increase in government transfer should be inelastic up to a certain threshold, beyond which the parents stop paying rent altogether. Furthermore, the cessation of rent payments is closely linked to the child's transition into the labor market and the parent's income. From this perspective, it seems unlikely that a marginal increase in social assistance would abruptly result in the cessation of rent payments. Hence, the slope of this curve is likely influenced more by differences between children than by the response of parental benefits to changes in the child's income itself. The crowding out effect can belong to the interval $[-13\%, -7\%]$. The upper bound -7% is obtained when considering the rent payment inelastic, while -13% is recovered by summing the wire and non-wire parental transfers, as the cross-sectional analysis gives. The -13% crowding-out can serve as an upper bound of the parent-to-child transfer response, leading to a conservative estimate of the social marginal utility associated with a child-targeted policy.

5.3 Implication for Consumption Smoothing Gains

The empirical exercise carries important implications for social marginal utility. Reconciliating the empirical findings with the conceptual framework sheds light on the first piece of welfare analysis: the ratio of social marginal utility. As the empirical results suggest, policy makers might consider targeting young workers at the lower end of the income distribution or students with low-income parents. This subsection sequentially formalizes the social marginal utility of a policy targeting all children, economically disadvantaged young workers, and children with low-income parents.

No tagging A first useful analyses is to focus on the effect of increasing benefit for all children. The empirical results suggest a high the MPC for all children (0.41 on average), while lower for parents (0.25). The results also indicates a conservative 13% crowding-out, and low 1% pass-through. Together, these four sufficient statistics allow us to express a lower bound on the ratio of children SMU to parents SMUs. Following expression 12 and replacing the parameters by their values, I find the following inequality:

$$\frac{SMU_t^{x,Cx}}{SMU_t^{x,Px}} \geq \frac{2.45 \times (1 - 0.13)}{1 + 2.45 \times 0.01} = 2.08$$

The social marginal utility resulting from an increase in transfers to children is estimated to be, at least, 2.08 times greater than the social marginal utility stemming from an increase in transfers to parents. It worth emphasizing that this value is a conservative lower bound estimate of the difference between parents' and children's social marginal utilities, implying that the actual difference could be larger. Thus, a policy that prioritizes parents would be justified either by a government that cares almost twice as much for parents as for children or by the fiscal externality of children being at least 2.08 times greater than that of parents.

Student with low-income parents The same analysis can be replicated for student with low income parents. Replacing the MPC by the MPC estimated for those students I find:

$$\frac{SMU_t^{Cw}}{SMU_t^{x,Px}} \geq \frac{3.67 \times (1 - 0.13)}{1 + 3.67 \times 0.01} = 3.90$$

As the transfer value of a transfer targeting income with low income parents in significantly higher, so is the ratio of the social marginal utility of those individual over older individuals. Overall, a policy targeting a young adults in education with low income parents has a social marginal utility almost 4 times larger than targeting an older individual.

Working children The same follows for working young adults, who have a higher MPC on average:

$$\frac{SMU_t^{Ce}}{SMU_t^{x,Px}} \geq \frac{4.69 \times (1 - 0.13)}{1 + 4.69 \times 0.01} = 3.08$$

A policy targeting a young adults in the labour market has a social marginal utility 3 times larger than targeting an older individual.

6 Fiscal Cost

[This section is being improved]

The fiscal cost of changing the transfer to parents is fully captured by the labor supply responses. Hendren, 2016 provides an estimates of the fiscal externality of the exact same response of 0.14. Overall, the cost of increasing benefits toward this population is 1.14, which means that an increase in 1 euro of benefit to an individual, actually cost 1.14 euros to the government because of labor supply responses. Concerning the fiscal cost of targeting young adults in the labour market, one must first recover the distortion in the labor supply. They is no evidence of significant different in labor supply responses between older and younger individuals in the literature. I therefor borrow the same estimates as for parents. However, young adults also distort their education decision in response to the benefit change, but this change is estimated to be moderate but significative (0.01/270) by Blundell et al., 2016. The benefit increase leads those pivotal individuals to have lower wages in the future, as they do not benefit from return to education anymore. However, this effect is mitigated by the fact that those people are now going to be taxed, in contrast to the situation where they would have been in studies. Therefor, when considering the fiscal cost one must account for the education distortion weighted by the taxes raised from more individual in the labor market plus their loss in income in the subsequent periods due to the return in education. However the return to education of those pivotal individuals is really hard to estimate in practice as it requires both extremely granular data and an exogenous shocks. In the literature so far this elasticity has never been estimated. For now, I am computing the average return to education of an extra year of education and therefore making the assumption that the return to education of the pivotal individual is the same. In France, I find that the return of one extra year of education is 10%. Putting everything back in the Equation 6 I find that the fiscal cost of targeting a young adult in the labor market is 1.34, which is significantly higher than the fiscal cost of targeting older individuals due to education decision responses. Finally, the fiscal cost of targeting young adults in education is entirely captured by the education decision responses. The underline mechanism is symmetrical to the change in transfer targeting young adults in the labour market. In the first period, less individuals will be on the labor market and therefor taxed, but in all the subsequent periods, those pivotal individuals will have higher income due to the return to education. Fack and Grenet, 2015 find that in France an increase in benefit to student of 1500 euros would leads to a increase in the share of student by 0.07%. I use the same 10% of baseline return to education. Note however that the higher the return, the lower the fiscal cost. The Figure REF shows a simulation of the fiscal cost for different level of return to education. Overall I find that the fiscal cost of increasing benefit toward student is 0.86. It means that the cost of the policy in lower than the mechanical cost: increasing benefit of one euro to a student cost 0.86 euros to the government.

7 Cost - Benefit Analysis

To conclude on the welfare effect of redistributing from older to younger individuals, I rely on the MVPF analysis, comparing the ratio of social marginal utility to the ratio of the fiscal cost:

$$\frac{SMU_t^{Cx}}{SMU_t^{Px}} \overset{?}{>} \frac{1 + FE_t^{Px}}{1 + FE_t^{Cx}} \tag{17}$$

If the ratio of social marginal utility is larger than the ratio of the cost, the redistribution is welfare enhancing.

Targeting Students - Low Income parents Based on the previous empirical evidences, and taking the ratio of SMU by it lower bound results, this inequality can be written as follows for a policy that targets students with low income parents vs a policy targeting older individuals:

$$\frac{SMU_t^{Ce}}{1+FE_t^{Ce}} \geq 6 \times \frac{SMU_t^{P}}{1+FE_t^{P}} \tag{18}$$

The welfare effects of targeting a young adult in education is 6 times larger that targeting and older individuals, which means that the redistribution would be highly welfare enhancing.

Targeting Students - Low Income parents Based on the previous empirical evidences, and taking the ratio of SMU by it lower bound results, this inequality can be written as follows for a policy that targets young adults in the labor market vs a policy targeting older individuals:

$$\frac{SMU_t^{Cw}}{1+FE_t^{Cw}} \geq 2 \times \frac{SMU_t^{P}}{1+FE_t^{P}} \tag{19}$$

The welfare effects of targeting a young adult in the labor market is 2 times larger that targeting and older individuals, which means that the redistribution would be highly welfare enhancing.

8 Conclusion

This paper presents a framework for analyzing the welfare effects of increasing government transfers to young adults compared to older individuals. This framework provides insights into the distributional impacts of age-based transfer policies by incorporating behavioural responses such as labour supply and educational decisions and the interaction between parents-to-child private transfers and government transfers.

Using derived sufficient statistics applied to bank data, I find a significant disparity in the social marginal utility of policies targeting young adults versus older individuals. Specifically, the social marginal utility of a policy targeting young adults is twice as large as that targeting older individuals, indicating that young adults stand to gain substantially more from increased transfers. This disparity increases to four times when targeting students from low-income families and three times when targeting young workers. These differences in social marginal utility are attributed to both the higher value of the transfer, as captured by the Marginal Propensity to Consume, and the relatively low responsiveness of parents-to-child private transfers to changes in government assistance.

Furthermore, the theoretical framework is utilized to assess the fiscal cost of the policies considered. The fiscal cost of an increase of one euro in benefits targeting students is lower than one, indicating that the policy costs less for the government than the individual actually receives. However, the fiscal cost of targeting young workers is 15% higher than a policy targeting older individuals.

Applying the Marginal Value of Public Fund's methodology to aggregate the social marginal utility and costs of policies, I find that directing assistance to students from economically disadvantaged backgrounds yields welfare gains six times higher compared to targeting older individuals. Similarly, targeting young workers results in welfare gains two times higher than targeting older individuals.

In summary, our findings provide evidence that targeted transfer programs for young adults, particularly those from economically disadvantaged backgrounds, have the potential to enhance overall welfare significantly. These insights can inform policymakers' decisions regarding the design and implementation of social assistance policies to address intergenerational inequalities and promote social mobility.

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Appendix A Conceptual Framework

A.1 Social Marginal Utility

First, consider the welfare effect of a marginal deviation of the transfer to parent while in education (b^e_x), equation 3 states the following:

$$\mathcal{W}_t^{CS,Px} = S_t^{Px} \underbrace{\left[\mathbb{E}\left(w_i^P \frac{\partial u_{i,t}^{Px}(\cdot)}{\partial c^{Px}} \Big| s(e_{it}) = 1 \right) + \mathbb{E}\left(w_i^C \frac{\partial u_{i,t}^{Cx}(\cdot)}{\partial c^x} \frac{\partial g^x}{\partial b^{Px}} \Big| s(e_{it}) = 1 \right) \right]}_{\equiv SMU_t^{Px}}$$

Proof.

$$\frac{\partial \mathcal{W}(b,\tau)}{\partial b_t^{Pe}} = \underbrace{\frac{\partial \int_i w_i^C V_i^C(b^C,\tau,g)di}{\partial b_t^{Pe}}}_{(i)} + \underbrace{\frac{\partial \int_i w_i^P V_i^P(b^C,b^P,\tau)di}{\partial b_t^{Pe}}}_{(ii)} + \lambda \frac{\partial GBC(b,\tau)}{\partial b_t^k}$$

With λ the marginal cost of public funds, and $\frac{\partial GBC(b^e,b^w,\tau)}{\partial b^e}$ the fiscal cost. The social marginal utility computation requires focusing on two first terms of the welfare impact. The first term exhibit the effect of a deviation in parents transfer on children utility. Compare to traditional model when the policy only impact beneficiaries, here, children are impacted by a change in government transfer to parents because of it impact of parent-to-child private transfer. The second term yield the impact of the policy on it beneficiaries.

$$\begin{aligned}
(i) \quad \frac{\partial \int_i \partial w_i^C V_i^C(b^C,\tau,g)di}{\partial b_t^{Pe}} &= \int_i \int_{\zeta_{it}} w_i^C \lambda_t^e \left(\frac{\partial g_{it}^e}{\partial_t^{Pe}} \right) \mathbb{1}[s(e_{it}) = 1] dF(\zeta_{it}) di \\
&= \int_i \int_{\zeta_{it}} w_i^C \frac{\partial u^{Ce}(c^e)}{\partial b_t^{Pe}} \left(\frac{\partial g_{it}^e}{\partial b_t^{Pe}} \right) \mathbb{1}[s(e_{it}) = 1] dF(\zeta_{it}) di \\
&= S^{Ce} \mathbb{E}\left(w_i^C \frac{\partial u^e(c_{it}^e;\zeta_{it})}{\partial c^e} \left(\frac{\partial g_{it}^e}{\partial b_t^{Pe}} \right) \Big| s(e_{it}) = 1 \right)
\end{aligned}$$

with S^{Ce} the share of children doing education $\int_i \int_{\zeta_{it}} \mathbb{1}[s(e_{it}) = 1] dF(\zeta_{it})$

$$(ii) \quad \frac{\partial \int_i \partial w_i^P V_i^P(b^C, b^P\tau, g)di}{\partial b_t^{Pe}} = \int_i \int_{\zeta_{it}} w_i^P \lambda_t^{Pe} \mathbb{1}[s(e_{it}) = 1] dF(\zeta_{it})di$$

$$= \int_i \int_{\zeta_{it}} w_i^P \frac{\partial u^{Pe}(c_{it}^P, y_{it}^P, y_{it}^P; \zeta)}{\partial b_t^{Pe}} \mathbb{1}[s(e_{it}) = 1] dF(\zeta_{it})di$$

$$= S^{Ce}\mathbb{E}\left(w_i^P \frac{\partial u^{Pe}(c_{it}^P, y_{it}^P, y_{it}^P; \zeta)}{\partial c^{Pe}} \middle| s(e_{it}) = 1 \right)$$

with S^{Ce} the share of children doing education $\int_i \int_{\zeta_{it}} \mathbb{1}[s(e_{it}) = 1] dF(\zeta_{it})$ □

Second, consider the welfare effect of a marginal increase of the transfer to children while in education (b_x^e), equation 4 states the following.

$$\mathcal{W}_t^{CS,Cx} = S_t^{Cx} \times \underbrace{\mathbb{E}\left(w_i^C \frac{\partial u_{i,t}^k(\cdot)}{\partial c^x} \left(1 + \frac{\partial g_{it}^x}{\partial b^x}\right) \middle| s(e_{it}) = 1 \right)}_{\equiv SMU_t^{Cx}}$$

Proof.

$$\frac{\partial \mathcal{W}(b, \tau)}{\partial b_t^{Ce}} = \underbrace{\frac{\partial \int_i w_i^C V_i^C(b^C, \tau, t)di}{\partial b_t^{Ce}}}_{(i)} + \underbrace{\frac{\partial \int_i w_i^P V_i^P(b^C, b^P, \tau)di}{\partial b_t^{Ce}}}_{(ii)} + \lambda \frac{\partial GBC(b, \tau)}{\partial b_t^k}$$

The social marginal utility computation requires focusing on two first terms of the welfare impact. Although, I assume that the government neglects the effects induced by altruism, therefore, (ii) is null. The remaining computation heavily relies on the envelop theorem.

$$(i) \quad \frac{\partial \int_i \partial w_i^C V_i^C(b^C, \tau, t)di}{\partial b_t^{Ce}} = \int_i \int_{\zeta_{it}} w_i^C \lambda_t^e \left(1 + \frac{\partial g_{it}^e}{\partial b_x^e}\right) \mathbb{1}[s(e_{it}) = 1] dF(\zeta_{it})di$$

$$= \int_i \int_{\zeta_{it}} w_i^C \frac{\partial u^{Ce}(c^e)}{\partial b^{Ce}} \left(1 + \frac{\partial g_{it}^e}{\partial b_x^e}\right) \mathbb{1}[s(e_{it}) = 1] dF(\zeta_{it})di$$

$$= S^{Ce}\mathbb{E}\left(w_i^C \frac{\partial u^e(c_{it}^e; \zeta_{it})}{\partial c^e} \left(1 + \frac{\partial g_{it}^e}{\partial b_x^e}\right) \middle| s(e_{it}) = 1 \right)$$

with S^{Ce} the share of children doing education $\int_i \int_{\zeta_{it}} \mathbb{1}[s(e_{it}) = 1] dF(\zeta_{it})$ □

A.2 MPFV - Welfare impact

Proof. Proposition 1 - A budget-balanced increase in the tilt b^e/b^P *increases welfare if and only if* $\frac{SMU^C}{1+FE^C} > \frac{SMU^P}{1+FE^P}$.

By implicit differentiation, the government constraint remain balanced when the combine policy change in b^e and b^P follow this path:

$$\frac{db^{Pe}}{db^e} = -\frac{1+FE^C}{1+FE^P}$$

Following this policy path, the welfare effect can be written as:

$$\begin{aligned}\frac{\partial W}{\partial b^e}\frac{db^e}{db^e} - \frac{\partial W}{\partial b^{Pe}}\frac{db^{Pe}}{db^e} =& S\left[SMU^C - \lambda\left(1+FE^C\right) - \left(SMU^P - \lambda(1+FE^P)\right) \times \left(\frac{1+FE^C}{1+FE^P}\right)\right] \\ =& S(1+FE^C)\left[\frac{SMU^C}{1+FE^C} - \frac{SMU^P}{1+FE^P}\right]\end{aligned}$$

□

A.3 Fiscal Cost

The government budget constraint is written:

$$GBC = -S \times b_1^e - (1-S)(b_1^w + \bar{\tau}_1^{e_L}) + \sum_{t=2}^{T}(S \times \bar{\tau}_t^{e_H} + (1-S) \times \bar{\tau}_t^{e_H} - b_t^w)$$

With S the share of children in education at $t = 1$, $\bar{\tau}_t^{e_k} = \int_i \int_\zeta \tau y_{it}(\zeta_{it}))dF(\zeta_{it}|e_k)$ *with* $k \in \{l, h\}$ the revenue raised through children labor taxation and $\bar{\tau}_t^P = \int_i \int_\zeta \tau y_{it}(\zeta_{it}))dF(\zeta_{it}^P)$ the revenue raised through parents labor taxation. Therefore rewriting as:

$$\begin{aligned}GBC =& -S \times b_1^e - (1-S)\left(b_1^w + \int_{i\in e_l}\int_\zeta \tau y_{i1}(\zeta_{i1}))dF(\zeta_{i1}|e_l)d\zeta_{i1}di\right) \\ &+ \sum_{t=2}^{T}\left(\int_i\int_\zeta s(e_{i1})\left(\tau y_{it}(\zeta_{i1})f(\zeta_{it}|e_h)\right) + (1-s(e_{i1}))\left(\tau y_{it}(\zeta_{i1})f(\zeta_{it}|e_L)\right)\right)\end{aligned}$$

The remaining of the subsection is detailing the computation of an impact of a change in transfer to children on the government budget constraint, starting from a flat profile where $b_1^w = b_1^e$.

A.3.0.1 Increase in b^e Let's consider an increase in the transfer to children in education (b^e):

$$\begin{aligned}\frac{\partial GBC}{\partial b^e} =& - S - \frac{\partial S}{\partial b^e} b^e - \frac{\partial (1-S)}{\partial b^e}\left(b_1^w - \bar{\tau}_1{}^{e_H}\right) + (1-S)\frac{\partial \bar{\tau}_1{}^{e_H}}{\partial b^e} \\ &+ \sum_{t=2}^{T}\left(\int_i \int_\zeta \frac{\partial s(e_{i1})}{\partial b^e}\tau_t \left(y(\zeta_{it}) f(\zeta_{it}|e_H) - y(\zeta_{it}) f(\zeta_{it}|e_L)\right) d\zeta_{it} di + \left(\int_i \int_\zeta s(e_{i1})\frac{\partial y(\zeta_{it})}{\partial b^e}\tau_t f(\zeta_{it}|e_H)\right)\right)\end{aligned}$$

Denoting R_i the return to education $y(\zeta_{it})f(\zeta_{it}|e_H) - y(\zeta_{it})f(\zeta_{it}|e_L)$, and noting that an increase in b^e can not lead a children to go from education to no education, one find:

$$\begin{aligned}\frac{\partial GBC}{\partial b^e} =& - S - \frac{\partial S}{\partial b^e}\bar{\tau}_1{}^{e_L} + (1-S)\frac{\partial \bar{\tau}_1{}^{e_H}}{\partial b^e} + \sum_{t=2}^{T}\left[\tau_t \mathbb{E}\left(\frac{s(e_{i1})}{\partial b^e} R_{it}\right) + \tau_t S \frac{\partial \mathbb{E}_{e_H}(y_{it})}{\partial b^e}\right] \\ =& - S - \frac{\partial S}{\partial b^e}\bar{\tau}_1{}^{e_H} + (1-S)\frac{\partial \bar{\tau}_1{}^{e_L}}{\partial b^e} + \sum_{t=2}^{T}\left[\tau_t \mathbb{P}\left(\frac{\partial s(e_{i1})}{\partial b^e} = 1\right)\mathbb{E}\left(R_{it} | \frac{s(e_{i1})}{\partial b^e}\right) + \tau_t S \frac{\partial \mathbb{E}_{e_H}(y_{it})}{\partial b^e}\right] \\ =& - S - \frac{\partial S}{\partial b^e}\bar{\tau}_1{}^{e_L} + (1-S)\frac{\partial \bar{\tau}_1{}^{e_H}}{\partial b^e} + \sum_{t=2}^{T}\left[\tau_t \mathbb{P}\left(\frac{s(e_{i1})}{\partial b^e} = 1\right)\mathbb{E}\left(R_{it} | \frac{s(e_{i1})}{\partial b^e} = 1\right) + \tau_t S \frac{\partial \mathbb{E}_{e_H}(y_{it})}{\partial b^e}\right] \\ =& - S - \frac{\partial S}{\partial b^e}\bar{\tau}_1{}^{e_L} + (1-S)\frac{\partial \bar{\tau}_1{}^{e_H}}{\partial b^e} + \sum_{t=2}^{T}\left[\tau_t \frac{\partial S}{\partial b^e}\mathbb{E}\left(R_{it} \middle| \frac{s(e_{i1})}{\partial b^e} = 1\right) + \tau_t S \frac{\partial \mathbb{E}_{e_H}(y_{it})}{\partial b^e}\right] \\ =& - S\left[1 + \frac{\partial S/S}{\partial b^e}\bar{\tau}_1{}^{e_L} + \frac{(1-S)}{S}\frac{\partial \bar{\tau}_1{}^{e_H}}{\partial b^e} - \sum_{t=2}^{T}\left[\tau_t \frac{\partial S/S}{\partial b^e}\mathbb{E}\left(R_{it} \middle| \frac{s(e_{i1})}{\partial b^e} = 1\right) - \tau_t S \frac{\partial \mathbb{E}_{e_H}(y_{it})}{\partial b^e}\right]\right]\end{aligned}$$

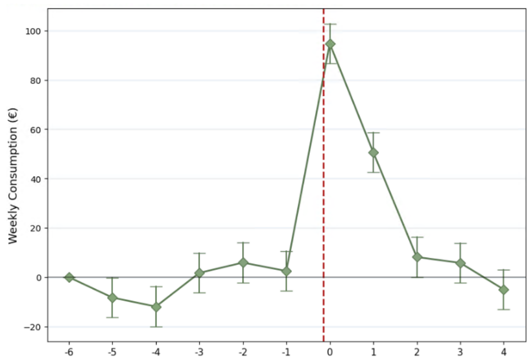
A.3.0.2 Increase in b_1^w Let's consider an increase in the transfer to children in the labor market (b_1^w). As above, a change in b^w cannot drive a children that decided not to do education before the change in the policy to now decide to pursue education. Then, following the same logic than for b^e, one find the following:

$$\begin{aligned}\frac{\partial GBC}{\partial b^e} =& - (1-S) + \frac{\partial (1-S)}{\partial b_1^w}\bar{\tau}_1{}^{e_L} + \sum_{t=2}^{T}\left[\tau_t \mathbb{E}\left(\frac{\partial\left(1 - s(e_{i1})\right)}{\partial b_1^w} R_{it}\right)\right] + \sum_{t=1}^{T}\left[\tau_t (1-S)\frac{\partial \mathbb{E}_{e_L}(y_{it})}{\partial b_1^w}\right] \\ =& - (1-S) + \frac{\partial (1-S)}{\partial b_1^w}\bar{\tau}_1{}^{e_L} - \sum_{t=2}^{T}\left[\tau_t \frac{\partial S}{\partial b_1^w}\mathbb{E}\left(R_{it} \middle| \frac{\partial s(e_{i1})}{\partial b_1^w} = -1\right)\right] + \sum_{t=1}^{T}\left[\tau_t (1-S)\frac{\partial \mathbb{E}_{e_L}(y_{it})}{\partial b_1^w}\right] \\ =& - (1-S)\left[1 - \frac{\partial (1-S)}{\partial b_1^w (1-S)}\bar{\tau}_1{}^{e_L} + \sum_{t=2}^{T}\left[\tau_t \frac{\partial S}{\partial b_1^w (1-S)}\mathbb{E}\left(R_{it} \middle| \frac{\partial S}{\partial b_1^w} = -1\right)\right] + \sum_{t=1}^{T}\left[\tau_t \frac{\partial \mathbb{E}_{e_L}(y_{it})}{\partial b_1^w}\right]\right]\end{aligned}$$

Appendix B MPC Analysis - Robustness

Figure A.1: Parents' MPC 2019, 2021

(a) 2019 MPC (24%)



(b) 2021 MPC (25%)

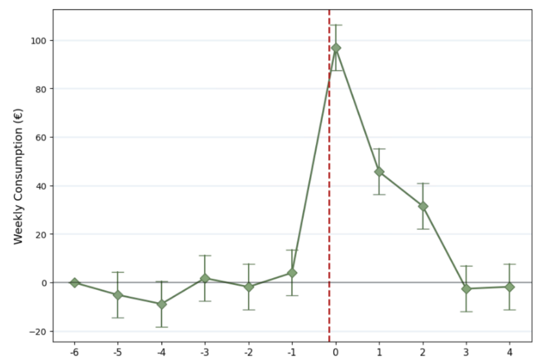
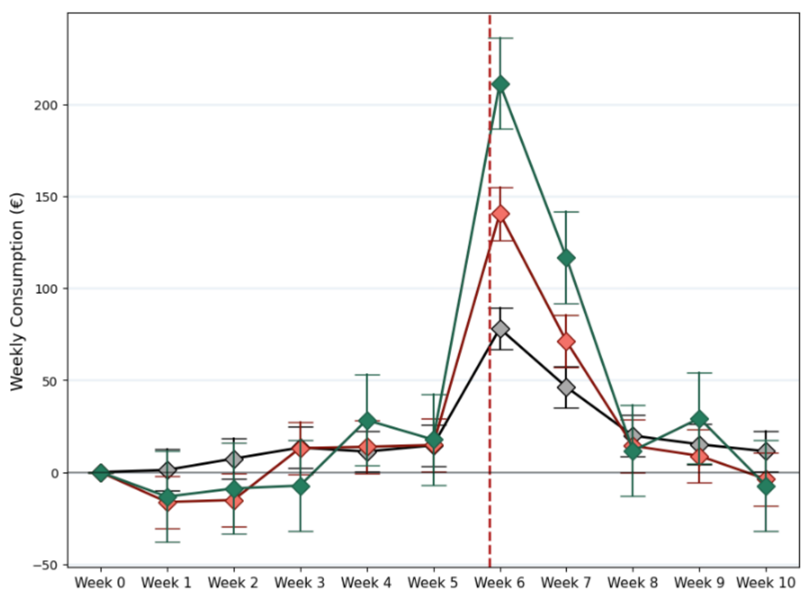


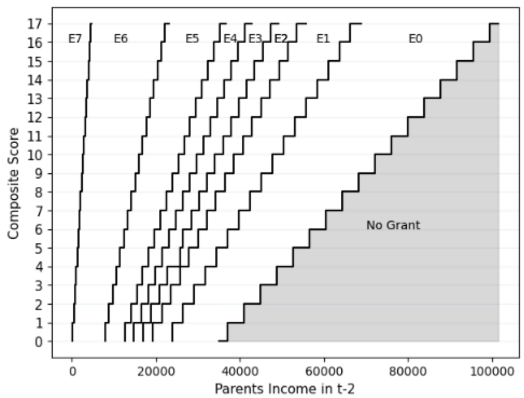
Figure B.1: MPC by Amount Received



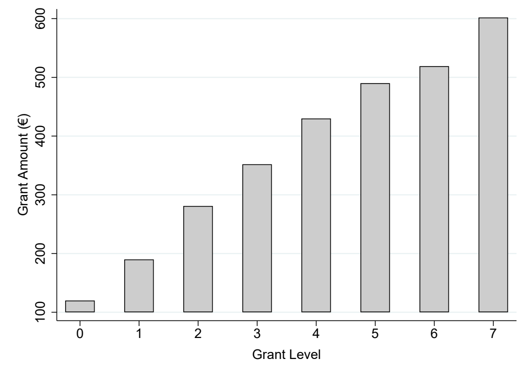
Appendix C Transfer Derivative

Figure C.1: Student Grant

(a) Grant Schedule



(b) Grant Schedule Amount



Notes:

Appendix D Fiscal Cost

Figure D.1: Fiscal Cost by Return to Education