

Give & Take?

Child Benefits & Prices in Northern Canada

Angela Daley
University of Maine
angela.daley@maine.edu

Nicholas Li
Toronto Metropolitan University
nicholas.li@torontomu.ca

Barry Watson
Acadia University
barry.watson@acadiau.ca

Acknowledgements: Alireza Babghanferdows provided outstanding research assistance. Nicholas Li received support from a SSHRC Explore Grant, SSHRC Insight Development Grant, and Nutrition North Food Security Grant. Angela Daley recognizes support from the United States Department of Agriculture, National Institute of Food and Agriculture through the Maine Agricultural and Forest Experiment Station (Hatch project 7003755). Any errors are our own.

Data Availability: The data used in this analysis are not publicly available due to Statistics Canada's confidentiality requirements. Housed at Statistics Canada Research Data Centres located throughout Canada, this dataset can only be accessed upon acceptance of a research proposal. For more information, see: <https://www.statcan.gc.ca/en/microdata/data-centres>.

Conflicts of Interest: Angela Daley was employed by the North West Company in Gjoa Haven and Taloyoak, Nunavut from 2004-2006. She was a store-level employee and did not have influence on the company's broader operations or policies.

Give & Take?

Child Benefits & Prices in Northern Canada

Abstract

Cost of living is comparatively high in Northern Canada, which is a remote and sparsely populated region served by retail oligopolies (40 percent of communities feature a monopoly, while the rest feature a duopoly). Government transfers constitute a large share of household income in Northern communities, and child benefits are particularly important, with these programs having expanded in recent years (Universal Child Care Benefit in 2015 and Canada Child Benefit in 2016). We assess the extent to which increased child benefits are “captured” by retailers via higher prices. Using the Longitudinal Administrative Database and community-level data on prices and food shipments from Nutrition North Canada (2012-2019), we find that expanded child benefits are associated with higher prices, with an elasticity of 0.027. And, while not statistically significant, the quantity response is comparatively large, with an increase of 22 grams per extra dollar of child benefits versus 3.6 grams per extra dollar of total income. These results suggest that expanded child benefits coincide with an increase in food demand, leading retailers to raise prices. The conjecture that Northern communities are not pure “price-takers” is supported by our tests for heterogeneity, where the price and quantity effects are driven by monopoly communities.

JEL Codes: I18, J15, D42

Keywords: Northern Canada; Subsidies; Prices; Competition; Monopoly

1. Introduction

Our largest customer segments derive most of their income directly or indirectly from government infrastructure spending or direct payment to individuals in the form of social assistance, child care benefits and old age security. While these tend to be stable sources of income, independent of economic cycles, a decrease in government income transfer payments to individuals, a recession, or a significant and prolonged decline in consumer spending could have an adverse effect on the Company's operations and financial performance. (North West Company, 2016, p.18)

Burnett and Hay (2023) describe how the long history of government financial support in remote Indigenous communities has served as a form of corporate welfare, supporting the profits of the Hudson Bay Company and the successor of its operations in Northern Canada, the North West Company. As traditional Indigenous food pathways became circumscribed, the government introduced family allowances that bolstered the demand for market food purchases. As late as the 1960s, many communities and individuals were subjected to forced purchasing lists. Rather than receiving an unconditional cash transfer, they could only spend their family allowances on in-kind purchases of food from specific lists, preventing them from buying the supplies needed for traditional subsistence activities, which provided the only viable alternative to retail food purchases. Policies favouring retail purchases over local food production have continued in recent years. For example, the federal government subsidizes the shipping of food to remote Northern communities through Nutrition North Canada. Subsidies are paid directly to retailers, and they are expected to relay the savings to consumers in the form of lower prices. Furthermore, from its implementation in 2011 until 2019, Nutrition North Canada did not

provide support for traditional subsistence activities.

Also in recent years, there were major changes in federal child benefits, with expansions in both 2015 and 2016. In this paper, we examine how much of the increase in child benefits was captured by retailers in the form of higher prices, while also accounting for variation in market structure given that a large proportion of Northern communities feature a retail monopoly (approximately 40 percent in our sample). The increase in benefits was explicitly noted in an annual report of the North West Company, “Northern Canada is seeing more monthly income from the new Child Care Benefit payments and will gain further as infrastructure spending picks up in 2017” (2016, p. 17). The extent to which this dominant retailer and others in the region are able to “capture” some of the expanded child benefits in the form of higher prices is of direct relevance to policymakers given the importance of government transfers in Northern communities where prices are persistently high and income is comparatively low. In addition to its policy relevance in Northern Canada, this study makes an important contribution to the empirical literature on the inflationary effects of government transfers, especially with respect to large-scale cash transfers in developed countries.

Using Statistics Canada’s Longitudinal Administrative Database (LAD), combined with community-level data from the Nutrition North Canada program from 2012 to 2019, we estimate the effect of expanded child benefits on local prices and quantities of food demanded. We find that expanded child benefits are associated with higher prices for a basket of goods, with an estimated elasticity of about 0.027. Moreover, while the association between child benefits and quantity is not statistically significant, the impact is large relative to other income sources (i.e., approximately 22 grams per extra dollar of child benefits, compared to 3.6 grams per extra dollar of total income). Taken together, these results suggest that communities, which experienced

an increase in child benefits, also experienced an increase in food demand, leading retailers to raise prices. The implication that Northern communities may not be pure “price-takers” is supported by specifications in which we examine heterogeneity by market structure. These results indicate that the average price effect we identify is driven by monopoly communities, which have a child benefit elasticity estimate of about 0.042. The quantity effect is also driven by monopoly (and non-Inuit) communities, suggesting that child benefits still translated into greater food shipments despite some “capture” by retailers in the form of higher prices. To put this capture in perspective, the increase in food basket costs for a family of four offsets between 25 percent and 41 percent of the increased community-level purchasing power of the child benefit expansion for the average and retail monopoly communities respectively.

2. Background

2.1. Northern Communities & Prices

Delineated by the presence of permafrost, Northern Canada can be defined as the three territories (i.e., Yukon, Northwest Territories, Nunavut) and the portions of seven provinces that are situated above 50 degrees latitude (i.e., Newfoundland and Labrador, Quebec, Ontario, Manitoba, Saskatchewan, Alberta, British Columbia). It is a vast region, representing almost two thirds of the Canadian landmass (Natural Resources Canada, 2017). The population – which is small and largely comprised of Indigenous Peoples (i.e., those who identify as First Nations, Métis and/or Inuit) – is located in isolated communities across the region.¹ This isolation is reinforced by

¹For example, only 0.3 percent of the Canadian population is located in the three territories. The share of Indigenous Peoples ranges from 22 percent in Yukon to 86 percent in Nunavut, compared to

limited transportation infrastructure. For example, only one percent of the Canadian road network and 0.2 percent of the rail network are located in the three territories (Dunlavy et al., 2009). Depending on the season, Northern communities receive imported goods by plane or marine service (e.g., annual sealift), as well as temporary ice roads in some cases.

The limited transportation infrastructure contributes to relatively high prices, as does the lack of retail competition in the region. Specifically, of the 120 Northern communities that do not have year-round access by surface transportation, 54 percent have one full-service grocery store, while the rest have a second store. When surveyed about their concerns with the retail environment, Northern residents reported issues related to food quality and freshness, availability and variety, and high prices (Burnett et al., 2017). Indeed, there is evidence that cost of living was 46 percent higher in the territories compared to the rest of Canada between 1997 and 2009 (Daley et al., 2015). Likewise, Duhaime and Édouard (2015) find that cost of living was 66 percent higher in Inuit Nunangat between 2007 and 2009.² More recently, Robitaille et al. (2018) find that cost of living was 28.7 percent higher in Nunavik (Northern Quebec) compared to Quebec City in 2016. However, the estimate is considerably higher for certain spending categories, such as food (54.6 percent), household operations and furnishings (48.7 percent), and alcohol and tobacco products (39.4 percent).

To offset the high cost of living, the federal government subsidizes the shipping of eligible goods to communities that do not have year-round access by surface transportation. This was historically done through the Food Mail Program, which was replaced by Nutrition North Canada in 2011. Under the latter program, subsidies

five percent in Canada as a whole (Statistics Canada, 2024).

²Inuit Nunangat is the Inuit homeland in Canada, consisting of 51 communities in the Inuvialuit Settlement Region (Northwest Territories), Nunavut, Nunatsiavut (Northern Labrador) and Nunavik (Northern Quebec).

are higher for communities that are more remote, and for food that is deemed more nutritious and perishable. Unlike the Food Mail Program – in which eligible goods received subsidized freight rates through Canada Post – subsidies are now paid directly to retailers. They submit claims after receiving eligible goods and are expected to fully relay the subsidy to consumers in the form of lower prices. However, Nutrition North Canada has been criticized for insufficient transparency and accountability to ensure that subsidies are “passed through” to consumers, and there is a widespread perception that the program has benefited retail oligopolies rather than consumers (Burnett et al., 2017).³

As part of the program’s accountability measures, retailers are subject to periodic compliance reviews and food price surveys. In terms of the latter, retailers receiving the subsidy are required to report the prices of 67 food items weighing approximately 52 kilograms (i.e., 38 perishable items weighing 37 kilograms and 29 non-perishable items weighing 15 kilograms). The prices of individual items are not publicly released. Rather, they are used to calculate the weekly cost of a nutritious diet for a family of four, known as the Revised Northern Food Basket (RNFB). This is done at the community level. For communities with a monopoly, prices reported by the single retailer are used to calculate the RNFB. For communities with a duopoly, the unweighted average prices across retailers are used (Galloway and Li, 2023).⁴

Using the community-level RNFB as a measure of prices, Galloway and Li (2023) assess the extent to which subsidies are “passed through” to consumers. They find that an extra dollar of subsidy reduces prices by 67 cents, on average, and pass-

³This is one of many criticisms of the program. Others include: insufficient funding; the exclusion of goods that are important to Northern families; increased dependency on imports from Southern Canada; paternalism; and inadequate community consultation (Burnett et al., 2015; Food Banks Canada, 2016; Galloway, 2014, 2017).

⁴For more information, refer to Nutrition North Canada (2023) and the Minister of Public Works and Government Services Canada (2007).

through is lower in communities with a retail monopoly. Likewise, Naylor et al. (2020) find that retailers relay 91 cents of every dollar to consumers, with a 95 percent confidence interval ranging from 64 cents to \$1.17. The latter study is restricted to a small sample of 25 communities in Nunavut, and identification relies on the assumption that the relative prices of goods in Ottawa are a valid counterfactual for the (unsubsidized) relative prices of the same goods in Nunavut. On the other hand, Galloway and Li (2023) consider more than 80 communities across Northern Canada, and they use reforms to Nutrition North Canada in 2016 and 2019 as plausibly exogenous changes to subsidies, along with the inclusion of a control group. Contemporaneous work by Galloway and Li (2024) confirms their findings using product-level data.

High prices – the mitigation of which is limited because subsidies are not fully “passed through” by retailers – are challenging in Northern communities where income is comparatively low. For example, Inuit Tapiriit Kanatami (2021) reports that most households can afford less than 40 percent of the RNFB. And, those with very low income can only afford six to 13 percent of the RNFB. This coincides with the low-income rate in Inuit Nunangat, which was 19.9 percent in 2016 – ranging from 13.2 percent in Nunavik (Northern Quebec) to 22.4 percent in Nunavut. The national average was 14.5 percent (Harding and St-Denis, 2021).⁵ Similarly, 57.0 percent of families in Nunavut were food insecure in 2017-2018, compared to a national average of 12.7 percent. Among those with children, the rate of food insecurity was 78.7 percent in Nunavut, compared to a national average of 17.3 percent (Tarasuk and

⁵Low-income estimates for Inuit Nunangat do not account for differences in cost of living compared to the rest of Canada, so they are likely understated. Moreover, these estimates do not accurately reflect economic well-being in the presence of non-market subsistence activities, and they do not necessarily reflect Indigenous conceptualizations of economic well-being. For example, “Inuit define poverty as lacking economic wellbeing, lacking human capacities and capabilities, and social exclusion, including loss of self-reliance and connectedness” (Inuit Tapiriit Kanatami, 2018, p. 4).

Mitchell, 2020).

There is evidence that moving from the Food Mail Program to Nutrition North Canada – which paid subsidies directly to retailers and shifted the focus to certain communities and goods – has exacerbated food insecurity in Northern communities. Specifically, Fafard St-Germain et al. (2019) find that the policy change coincided with a 43 percent increase in food insecurity in Nunavut. Daley et al. (2024) confirm this finding, while expanding the analysis to communities outside of Nunavut, along with considering alternative measures of food insecurity and various subgroups. They find that moving from the Food Mail Program to Nutrition North Canada increased food insecurity in the affected communities, and the impact was particularly harmful to Indigenous families in the territories and Inuit Nunangat. They also find that the detrimental impact of the policy change was heightened in the presence of children, especially severe food insecurity among Indigenous families.

2.2. Reliance on & Expansion of Child Benefits

Coinciding with high prices and low income, Northern families are reliant on government transfers. For example, in Northern communities represented in the RNFB data, Galloway and Li (2023) report that approximately 25 percent of household income was derived from government transfers in 2015. Moreover, benefits targeted to families with children are especially important in Northern Canada because the population is relatively young. In Nunavut, for example, the median age is 25.6 years (versus 41.6 at the national level) and children are present in 46.8 percent of families (versus 29.3 percent at the national level) (Statistics Canada, 2023). As we discuss later, the importance of child benefits to Northern families is confirmed in Figure 1, which shows that the income share of such transfers is considerable in communities

represented in the RNFB data, and it increased from 4.5 percent in 2012 to almost 7 percent in 2019.

Indeed, as summarized by Baker et al. (2023), there were major changes in federal child benefits during our study period.⁶ First, the Universal Child Care Benefit (UCCB), which was a taxable transfer for families with young children, was expanded in 2015. Gross annual benefits increased from \$1,200 to \$1,920 for each child under the age of six, and from \$0 to \$720 for each child aged six to 17. The expansion was announced in the fall of 2014 and effective as of January 2015, but it was not reflected in monthly payments until July, which included six months of retroactive benefits. Coinciding with the expansion of the UCCB, the non-refundable Child Tax Credit was eliminated, which was worth approximately \$345 per taxpayer in 2015 (Battle, 2015).⁷ However, the UCCB expansion did not impact the longstanding Canada Child Tax Benefit or National Child Benefit Supplement, which were tax-free income-tested benefits dating back to the late 1990s. As of 2014, the Canada Child Tax Benefit provided a maximum annual payout of \$1,446 per child; it was clawed back for families with an after-tax income above \$43,953, such that the claw back rate depended on the number of children in the household. The National Child Benefit Supplement was targeted to lower-income families, providing a maximum annual payout of \$2,241 per child in 2014. Benefits were clawed back for families with an income greater than \$25,584, again depending on the number of children in the household (Baker et al., 2023).

These federal child benefits – the expanded UCCB, Canada Child Tax Benefit and

⁶Refer to Battle (2015) and Milligan (2016) for a historical summary of child benefits in Canada. Moreover, in addition to the major changes to federal programs described in our paper, it should be noted that child benefits vary across provinces/territories (Kesselman, 2019) and federally across time due to inflation indexing (Baker et al., 2023).

⁷Thus, as reported by Baker et al. (2023), the net benefit of the 2015 reforms varied depending on the household's tax situation (i.e., due to the marginal tax rate on the UCCB and elimination of the non-refundable tax credit).

National Child Benefit Supplement – were replaced by the Canada Child Benefit (CCB) in 2016.⁸ The CCB is a tax-free income-tested transfer, which was announced in the federal budget in March 2016. Implementation occurred in July of that year and, unlike the UCCB expansion, retroactive benefits were not provided. At the time of implementation, the CCB provided maximum benefits to families with an annual net income of \$30,000 or less (i.e., \$6,400 per year for each child under the age of six, and \$5,400 per year for each child aged six to 17). Benefits are clawed back for households with income between \$30,001 and \$65,000, and again for those income above \$65,000. The claw back rates increase with the number of children in the household. Relative to the earlier patchwork of programs, the CCB provides constant or higher benefits for most households with children, combined with a lower implicit tax rate (Najjarrezaparast and Pendakur, 2021).⁹ Households with income less than \$30,000 or around \$80,000 experienced an increase in child benefits of approximately \$800 per year. The largest increase occurred among families with an income of \$50,000; benefits increased by about \$2,000 per year. This is consistent with Najjarrezaparast and Pendakur (2021), who report that annual benefits increased by more than \$2,000 per child for most recipient households.

There is evidence that the 2015 and 2016 changes to federal child benefits – especially the introduction of the CCB – coincided with improvements in economic well-being at the national level. For example, Baker et al. (2023) find that the CCB

⁸The CCB also replaced the Family Tax Cut, which was implemented in 2014. The Family Tax Cut allowed parents to shift up to \$50,000 in taxable income from the higher earning spouse to the lower earning spouse, to a maximum benefit of \$2,000 (Battle, 2015). Likewise, the CCB replaced two smaller programs: (1) the Children’s Fitness Tax Credit, which was worth up to \$150 in refundable tax credits per child as of 2015; and (2) the Children’s Arts Tax Credit, which was worth up to \$75 in non-refundable tax credits per child as of 2015. Eligible expenses for these credits were halved in 2016, then completely eliminated in 2017.

⁹However, Baker et al. (2023) find that the CCB reduced benefits for families with an annual income above \$140,000, largely affecting single parents and two-parent/single-earner families within this income range.

reduced child poverty by 11 percent among families headed by a single mother, and by 17 percent in two-parent families. Similarly, the CCB reduced the likelihood of severe food insecurity at the national level, especially among families with low income (Brown and Tarasuk, 2019). These findings are consistent with Najjarrezaparast and Pendakur (2021), who find that rental-tenure households with less-than-median income increased their annual spending on necessities after the introduction of the CCB – by about \$700 on food, \$1,400 on shelter and \$350 on clothing.

2.3. Transfers & Prices

Recent papers have explored a series of positive non-pecuniary outcomes from both cash and in-kind transfers, which include: peer effects on school enrolment (Bobonis and Finan, 2009), child health (Hoynes et al., 2016), and psychological well-being (Haushofer and Shapiro, 2016). However, despite their rise in popularity, little is known about potential price effects of such transfers. Further, as noted by Jones and Marinescu (2022), most studies focus on randomized controlled trials in developing countries. Thus, there has been a dearth of studies that examine large-scale transfers and/or those occurring in developed countries. This is of particular importance given that Leung and Seo (2023) note “price effects could attenuate the real spending power of government transfer payments and distort the redistributions such transfer programs intend to achieve” (p. 1).

Among the studies situated in developing countries, Egger et al. (2022) show that cash transfers in Kenya predict a demand-led expansion in economic activity, which translates into rising household expenditures (even among untreated households), an increase in the wage bill, and a small increase in firm profits. The authors further conclude that such transfers caused minimal impact on local prices. Cunha et al.

(2019) analyse the impacts of both in-kind and cash transfers in rural Mexico, where the former consisted of direct food shipments. Notably, cash transfers had no impact on prices, and in-kind transfers caused prices of the goods in question to fall, especially in poorer villages. Filmer et al. (2018) find that a major conditional cash transfer in the Philippines increased the nutritional status of children in recipient households, particularly through increased consumption of protein-rich food; they also note that there was a reduction in health among non-eligible children. The authors further argue that this general equilibrium negative externality is likely the result of large scale eligibility, which had inflationary implications.

Attanasio and Pastorino (2020) argue that cash transfers may actually have harmful price effects - even among recipients - for the most vulnerable segments of society when markets are not necessarily competitive. That is, a portion of these transfers may be appropriated by firms in order to increase profit margins. And while they acknowledge that previous findings tend to find that cash transfers do not cause price increases, they also contend that measuring inflation through average unit prices may mask adverse impacts on the poor. For instance, they note that the Progresa cash transfer in Mexico caused unit prices of small quantities of food to increase, while unit prices of larger quantities of the same good decreased. And, given that the poor are more likely to purchase smaller quantities, cash transfers may price the poor out of the market. Consequently, they note that an effective cash transfer must be accompanied by policies that reduce market power (e.g., by lowering production and transportation costs).

As noted above, the price impacts of transfers in developed countries is scant. Among the few exceptions, Jones and Marinescu (2022) examine a universal annual cash payment in Alaska. Spanning 1982-2015, their difference-in-differences estimates (using synthetic control methods) suggest that price increases resulting from

the cash transfer were not statistically significant over this period, which is broadly in line with the results in developing nations. Otherwise, most studies focus primarily on a quasi-cash, in-kind transfer: the Supplemental Nutrition Assistance Program (SNAP).¹⁰

Leung and Seo (2023) find that from 2006-2015, a one percent increase in SNAP transfer payments was associated with a 0.08 percent increase in grocery store prices with inflation being somewhat higher in regions with more SNAP participation and/or increased grocery store concentration. Further, their estimates suggest that retailers increase the mark-up on both eligible and ineligible SNAP products, causing a small yet negative impact on non-eligible households, which corroborates work by Chen and Rey (2012). However, both Jaravel (2018) and Makioka (2018) argue that the expansion of SNAP benefits during the mid 2000s has put downward pressure on grocery prices, especially in regions with higher concentrations of SNAP beneficiaries.¹¹ They posit that long-run supply responses to increased demand have increased product variety and reduced retailer margins, both of which have had direct impacts regarding welfare gains among recipients.

Shapiro (2005) and Hastings and Washington (2010) argue that transfer recipients tend to increase consumption, directly after receiving their benefits, which typically occurs at the beginning of the month. In particular, both find evidence of short-run “impatience”, which Shapiro (2005) defines as hyperbolic discounting and a violation of the permanent income hypothesis. Likewise, Hastings and Washington (2010) note that recipients tend to shop more when benefits are received, with a monotonic de-

¹⁰Aiding about 1 in 8 Americans, or almost 20 percent of households, SNAP is the second largest means-tested program (Medicaid being the largest) in the United States (Hastings and Shapiro, 2018). Transfers from this program are paid out as monthly lump sums, which can be used to purchase most grocery items at participating stores (Goldin et al., 2022).

¹¹The scale of SNAP expanded over this time frame given a reduction in the transactions costs required to receive the transfer (e.g., simplified reporting) (Ganong and Liebman, 2018).

crease in spending during the weeks thereafter. Further, they find that decreased food expenditures are due to a reduction in the quantity, not quality, of food. Lastly, they also note that prices tend to fall by about three percent over a given month. Therefore, both Shapiro (2005) and Hastings and Washington (2010) argue that smaller, but more frequent, cash transfers would help reduce this purchase cycle. Moreover, staggering the timing of benefits across recipients, rather than issuing the transfer to everyone at the beginning of the month, would also help reduce the general fall in prices over a given month.¹²

Finally, for most eligible households, their spending on food is greater than what they receive in SNAP benefits, implying that such transfers could be regarded as cash transfers. However, Hastings and Shapiro (2018) show that the marginal propensity of food consumption is typically about 0.1 concerning household income, and 0.5-0.6 regarding SNAP transfers. Consequently, they argue that SNAP benefits are not fungible given that SNAP recipients only increase their non-food spending by a negligible amount. Thus, households appear to treat SNAP benefits differently than cash - a phenomenon known as “mental accounting” (Thaler, 1999).

3. Data

Our analysis combines two main sources of data. We use income data from the LAD for the years 2012-2019. The LAD is an administrative dataset that includes a representative 20 percent sample of all Canadian tax-filers. These data provide us with four important nominal income measures: total income, and three constituent categories: market income, child benefit income, and government transfer income (ex-

¹²This is disputed by Goldin et al. (2022), who find that when transfer payments are issued at the same time every month, there is indeed an immediate rise in expenditures; however, such predictable fluctuations in demand do not impact grocery prices.

cluding child benefits). We limit the LAD data to the set of Northern communities that are represented in the RNFB data described earlier. These communities are a subset of those eligible for the Nutrition North Canada program. Galloway and Li (2023) present descriptive statistics for these communities, which tend to be small (mean population 1,000), mostly Indigenous (94 percent), and poor by Canadian standards (median household income of \$32,334 in 2015 versus \$70,336 for Canada).

Based on the LAD, Figure 1 provides an overview of changes in mean income for the population of tax-filers in RNFB communities during our sample period. Total income rose by almost \$8,000 during this period, mostly driven by increases in market income. However the increase in child benefits was substantial at over \$1,600 (from \$1500 in 2012 to \$3100 in 2019), representing a 107 percent increase.¹³ As a share of total income in these communities, child benefit payments rose from about 4.5 percent to almost 7 percent. Increases in other government income were smaller than increases in child benefits and were concentrated in an earlier period. Notably, the population of households filing for child benefits increased over this period by about 11 percent, while the total population of tax-filers increased by 8 percent. Consequently, the share of tax-filers receiving child benefits was fairly constant, rising from 26.6 percent to 27.3 percent, so almost all of the growth in mean child benefit income in a community was on the intensive, per recipient margin.

Because only one-quarter of tax-filers in these communities receive child benefits, the increase in mean child benefit income for recipients was almost four times higher than for the average tax-filer and close to \$6,000. This represents a very large increase in income for a population that, by definition, has lower income and more children. This population is likely to have a much higher propensity to purchase food given marginal increases in income. The size of the child benefit income shock at the

¹³Notably, this coincides with the expansions of child benefits in 2015 and 2016 as described earlier.

community level induced by the policy changes depends on the joint distribution of income and children in each community.

The second source of data for our analysis comes from Nutrition North Canada (2023), which contains two important community-level public-use variables: cost of the RNFB and the quantity of (subsidized) food shipped. As noted earlier, the RNFB reflects the weekly cost of a nutritious diet for a family of four, based on food price surveys completed by retailers receiving the Nutrition North Canada subsidy. Items in the RNFB are selected to reflect local preferences and availability, as well as nutritional adequacy. Although the basket is not representative of local diets and is biased away from unhealthy processed foods, it still captures the price of a large and important set of products (including less nutritious staples such as sugar, lard, margarine, and butter) (Minister of Public Works and Government Services Canada, 2007). The data are reported on a quarterly basis and are averaged across stores at the community level. They are also mostly derived from three retailers. The North West Company is the dominant retailer in the region and is present in almost every sample community. The remaining two retailers are Inuit co-ops (La Federation des Cooperatives du Nouveau-Quebec and Stanton).¹⁴ The quantity data measures the total weight of subsidy-eligible food shipped per quarter to each community, for all retailers.

These data are supplemented with three additional variables. First, we include a “synthetic” measure of the national average price of the RNFB, derived from Statistics Canada data on the average monthly price of relevant commodities. We match 40 items in the RNFB to products in this dataset, use the RNFB quantity weights to aggregate these product prices, and then scale them to equal the average price of

¹⁴An important limitation of the public RNFB data is that one major retailer, the Inuit Arctic Co-op Limited, is excluded from the public calculations.

the RNFB purchased in Ottawa between 2005 and 2009 (based on an earlier RNFB data set reported on a government website). We also include a measure of average national gas prices, which may affect freight and energy costs, thereby affecting retail prices. Finally, we include a dummy variable for whether communities are eligible for the full Nutrition North Canada subsidy. This is important as 11 communities in our sample transitioned from a partial subsidy (worth \$0.05 per kilogram for eligible goods) to a full subsidy (worth up to \$2.85 per kilogram for eligible goods) in October 2016, around the same time as the introduction of the CCB.¹⁵

Figure 2 reports the annual averages of prices and quantities for our sample communities over the 2012-2019 period, with a vertical line denoting the introduction of the CCB. The left panel shows that the average cost of the the RNFB in our sample communities did not change much during our study period, but was trending up in the period before 2016, falling between 2016 and 2017, and rising once again. This pattern can also be observed in national average prices, suggesting that the path of national prices may capture common cost factors affecting these communities during this period. The right panel shows that quantities of subsidized food shipped fluctuated, but did not change much during the sample period; excluding 2012, there appears to be some correlation with prices in that periods of rising food prices are associated with a greater quantity shipped. Overall, these patterns suggest that it is important to account for national food prices, as a simple comparison of average food prices for RNFB communities in the periods immediately before and after the introduction of the CCB is likely to be biased.

¹⁵Note that there was an additional expansion of Nutrition North Canada in January 2019, but the increase in the subsidy content of the RNFB did not vary much across communities.

4. Estimation

Our empirical approach exploits community-level (i) variation in income and child benefit payments over time (t). To estimate the effects of income y on the price of the RNFB (P), we consider the following log-log regression specification:

$$\ln(\bar{P})_{it} = \alpha_i + \beta \ln(\bar{y})_{it} + \sum_{j=1}^K \Omega_j X_{it}^j + \epsilon_{it}. \quad (1)$$

Notably, we use the mean RNFB cost during the year (akin to Figure 2), along with community-level mean income. We also include community fixed effects (α_i) to account for time-invariant factors that affect pricing (e.g., remoteness, retail costs and competition, along with a community's baseline income level and food demand). For the vector of time-varying controls (X), we consider the cost of the “synthetic” RNFB (purchased in Ottawa) and national gas prices (both log-transformed), as well as a dummy variable for whether the community receives the full Nutrition North Canada subsidy. We also consider regressions with year fixed effects, such that the identification of income effects comes only from comparing communities with higher versus lower income changes. This discards the variation related to the large average increase in child benefits (or other income sources) during our sample period as shown in Figure 1 and, instead, relies on the fact that differences in the joint distribution of income and children in these communities led to differential increases in child benefit income. Akin to Figure 1, we estimate specifications using (i) total income and (ii) total income divided into three categories - market income, child benefit income, and other government transfer income.

In addition to the impact on RNFB prices, we also consider whether income changes affect the quantity of food demanded at the community-level. In this instance, we

consider the total quantity of subsidized food shipped to each community (Q) during the year and measures of community-level income (total, market, child benefits, other government transfers), so income coefficients can be interpreted as the change in kilograms of subsidized food shipped to a community per marginal dollar of income. Thus, we consider the following regression model:

$$Q_{it} = \alpha_i + \beta Y_{it} + \sum_{j=1}^K \Omega_j X_{it}^j + \epsilon_{it} \quad (2)$$

Table 1 reports the results of unweighted community-level regressions using ordinary least squares.¹⁶ Standard errors are clustered by community. Columns 1 and 2 show that, as expected, local food prices reflect national trends over time and are lowered when communities gain access to the full Nutrition North subsidy. Mean income in the community does not appear to be strongly related to RNFB prices, but when we separately observe the sources of income, we find a statistically significant elasticity of 0.027 for child benefit transfers. The elasticity of prices with respect to other sources of income is not significantly different than zero. Columns 3 and 4 repeat the same specifications but with time fixed effects, such that the coefficients on income can be interpreted as causal subject to the standard assumptions about two-way fixed effects and difference-in-differences type regression models. The magnitudes and statistical significance of the coefficients are similar, suggesting that our controls in columns 1 and 2 indeed capture the common time-varying factors relevant for prices in these communities.

Column 5 indicates that having access to the full Nutrition North subsidy and total community income are strongly associated with the quantity of subsidized food shipped. An extra dollar of income is associated with an extra 3.6 grams of subsidized

¹⁶Estimates weighted by the population of tax-filers in each community are similar and available on request.

food shipped. When we split up the sources of income in column 6, only market income is statistically significant. While the coefficient for child benefits is noisily estimated, it is much larger than other income sources (closer to 22 grams per extra dollar of income). Columns 7 and 8 show that these results are robust to the inclusion of time fixed effects.

The results in Table 1 indicate that communities that experienced larger increases in child benefits also experienced larger increases in food demand, leading retailers to raise food prices. This is a standard economic result of a positive demand shock given an upward supply curve, and suggests that Northern communities may not be pure “price-takers”, whereby prices are largely determined on the national/global market. However, this does not specifically implicate the behaviour of local retailers and the lack of retail competition, and could be driven by various cost factors. To shed more light on this specific transmission mechanism, we consider a series of regressions where we interact our income variables with an indicator for whether there is a retail monopoly in the community. Over 40 percent of the communities in our data (35 out of 87) feature a retail monopoly, typically a store owned by the North West Company, while the remainder typically feature duopoly competition between a North West Company store and a co-op.

Because most of the competing stores are Inuit co-ops, the presence of a monopoly is largely collinear with Inuit majority in the community; thus, we can consider this as a separate but highly negatively correlated interaction. Note that Galloway and Li (2023) find that non-monopoly and Inuit communities typically have higher incomes – for a similar sample, the 2015 median household income is 40 percent lower in monopoly communities than non-monopoly communities. We also consider interactions with 2012mean community income (measured in continuous terms), as a given increase in child benefits in a community is likely to be more impactful on food

demand when it is large relative to other sources of income (both at the community and household level). We consider interactions with these three variables separately and together, with the caveat that they are highly correlated and we only have 87 communities; therefore, we have low power to detect statistically significant effects for highly correlated community-level variables.

Table 2 presents the results of these interaction specifications, which reveal a certain degree of heterogeneity in the effect of child benefits on prices and quantities. For brevity purposes, we only report results for the specifications with year fixed effects. The results for prices in columns 1 through 4 suggest that the average effect on prices is largely driven by communities with a monopoly, as the coefficient on the monopoly interaction is large and statistically significant. Additionally the coefficient on child benefits, which can be interpreted as the price effect of child benefits for non-monopoly communities, is small and not significantly different than zero. Price effects also appear to be driven by non-Inuit communities, but the difference is not statistically significant at conventional levels. Similarly, the price effect of child benefit transfers is largest in the communities with lower initial mean income. The monopoly interaction is no longer significant at conventional levels when including all interactions, which is not surprising given the strong correlations between these variables; however, magnitudes remain fairly similar.

The results for quantities in columns 5 through 8 suggest that demand for subsidized foods increased more in non-Inuit communities and those characterised by a monopoly, when child benefits expanded. Further, these effects persist when controlling for all interaction terms. This suggests that the magnitude of the demand shock for food resulting from child benefit expansion was larger in these communities for reasons that are unclear, but likely related to the joint distribution of income and children across households leading to a higher marginal propensity to consume food out

of the increased child benefits. Given that these communities experience larger price increases, this can be seen both as a positive for the impacts of child benefits (i.e., child benefits still translated into greater food shipments despite some “capture” by retailers in the form of higher prices), or as part of the causal mechanism underlying the heterogeneous price effects.

Although child benefit expansion was a national policy and did not target community-level trends, the potential correlation of such trends with differences in income changes induced by child benefit expansion across communities is the primary threat to identification. To directly address this concern, we consider a “dynamic” regression, where we replace the contemporaneous measure of child benefits (CB) with the change in child benefits between 2015 and 2017 interacted with a dummy variable for every period (d). The other controls are similar to columns 2 and 6 of Table 1. That is, we consider the following regressions:

$$\ln(\bar{P})_{it} = \alpha_i + \sum_{m=2012}^{2019} \beta_m \Delta \ln(\bar{CB})_i \times d_m + \sum_{j=1}^K \Omega_j X_{it}^K + \epsilon_{it}; \quad (3)$$

$$Q_{it} = \alpha_i + \sum_{m=2012}^{2019} \beta_m \Delta CB_i \times d_m + \sum_{j=1}^K \Omega_j X_{it}^K + \epsilon_{it}. \quad (4)$$

In both instances, β_m captures the effect of child benefit expansions in different years. We would expect zero effects in the pre-period and persistent positive price and quantity effects in the post-period (2016 and later).

We report key estimates in Figure 3 for both prices (left panel) and quantities (right panel), along with 95 percent confidence intervals. We omit the 2015 interaction term so that coefficients can be interpreted as the effects of child benefit expansions on prices and quantities relative to the year before benefits increased. For prices, there do not appear to be any significant trends correlated with the benefit expansion prior to

2015, and there is an immediate and persistent increase in prices thereafter (although the 2017 coefficient is not statistically significant). For quantities of subsidized food, we again see little evidence of pre-trends and there is some indication of an increase in the post period, although like our regression results in Table 2, these effects are not statistically significant, given large standard errors.

To interpret the magnitude of the price effects and the extent of program “leakage,” we consider the implications of our estimated child benefit price elasticities of 0.027 for the average community (Table 1) and 0.042 for the average monopoly community (Table 2). The average expansion in child benefits for the sample is \$1600 or 0.73 log points, implying a 0.018 (0.03 monopoly) log point increase in the RNFB price. The mean price of the RNFB in our sample is \$410 (similar for monopoly and non-monopoly communities). This translates into a \$7.44 (\$12.49 monopoly) increase in food costs per week, which represents a \$386.88 (\$649.48 monopoly) increase in the average annual grocery bill for a family of four. Thus 25 percent of the increase in community-level purchasing power over food brought about by child benefit expansion was offset by higher prices for the average community and 41 percent for monopoly communities. Since a bit less than half of households receive child benefits, this community-level effect implies an effective “tax” on child benefit receiving households that is about half this magnitude, combined with a substantial externality imposed on non-recipients.

5. Discussion & Conclusion

This paper argues that cash transfers have inflationary effects, particularly in remote Northern regions where retailers have substantial market power. Consequently, communities that are characterized by a monopoly are likely to observe the retailer “cap-

turing” some of the transfer through price increases. The typical child benefit recipient in our sample communities experienced an increase in income of about \$6,000 per year, such that the purchasing power of these higher benefits in terms of food was eroded by 7 to 11 percent. However, in the presence of a monopoly, this “tax” increases by an estimated 50 percent. While recipients of the transfer still observe a net gain, it should be noted that price effects impact everyone in the community, which corroborates past research on large-scale SNAP transfers in the US (Leung and Seo, 2023).

We identify three avenues of future research. First, studies may wish to use product-level price data that has recently been made available. Attanasio and Pastorino (2020) suggest that for a given product, the smaller packages purchased by low income households tend to have larger price increases in response to increases in benefits. Examining differential price responses along this margin would be interesting in our context. With data on expenditure patterns, differential price responses across products also have important implications for inequality in inflation across households. Second, while the child benefit expansion represented a large shock in these communities, the income shock represented by COVID-19 benefits was even larger; the implications of this shock in our setting may be quite different given that it was not expected to be permanent, and coincided with supply-shocks and behavioural changes. Finally, an examination of the effects of income shocks on hunting and consumption of traditional foods is warranted - especially given evidence from recent research that these may be quite income elastic (Georgiev and Li, 2024).

Understanding the effects of targeted cash transfers, such as child benefits, on prices within various market structures adds to the limited literature on this topic in developed countries. This is especially true given the work to date has primarily focussed on the US, with particular emphasis on SNAP, and has not looked at small

spatial scales where researchers can identify locations with high degrees of market power. While this paper offers a first look at the impacts of cash transfers on retail prices in Northern Canada (which is comprised of a relatively young and vulnerable population), outcomes like nutrition, consumption and food insecurity are also important when assessing such transfers. In addition to the recent work that has analyzed the impact of policy changes on food insecurity in Northern Canada (Daley et al., 2024; Tarasuk and Mitchell, 2020), examining the marginal impact per dollar of various subsidies (e.g., Nutrition North Canada, the CCB) on health and well-being would allow policymakers to evaluate current programs in greater depth.

References

- Attanasio, O. and E. Pastorino, "Nonlinear pricing in village economies," *Econometrica*, 2020, 88 (1), 207–263.
- Baker, M., D. Messacar, and M. Stabile, "Effects of child tax benefits on poverty and labor supply: Evidence from the Canada Child Benefit and Universal Child Care Benefit," *Journal of Labor Economics*, 2023, 41 (4), 1129–1182.
- Battle, K., "Child Benefits in Canada: Politics versus Policy. Maytree Foundation," Available at: <https://maytree.com/wp-content/uploads/1074ENG.pdf> 2015.
- Bobonis, G. and F. Finan, "Neighborhood peer effects in secondary school enrollment decisions," *The Review of Economics and Statistics*, 2009, 91 (4), 695–716.
- Brown, E. and V. Tarasuk, "Money speaks: Reductions in severe food insecurity follow the Canada Child Benefit," *Preventive Medicine*, 2019, 129, 105876.
- Burnett, K. and T. Hay, *Plundering the North: A History of Settler Colonialism, Corporate Welfare, and Food Insecurity*, Winnipeg, MB: University of Manitoba Press, 2023.
- , K. Skinner, and J. LeBlanc, "From Food Mail to Nutrition North Canada: Reconsidering federal food subsidy programs for Northern Ontario," *Canadian Food Studies*, 2015, 2 (1), 141–156.
- , —, T. Hay, J. LeBlanc, and L. Chambers, "Retail food environments, shopping experiences, First Nations and the provincial Norths," *Health Promotion and Chronic Disease Prevention in Canada*, 2017, 37 (10), 333–341.

- Chen, Z. and P. Rey, "Loss Leading as an Exploitative Practice," *American Economic Review*, 2012, 102 (7), 3462–3482.
- Cunha, J., G. De Giorgi, and S. Jayachandran, "The Price Effects of Cash Versus In-Kind Transfers," *Review of Economic Studies*, 2019, 86, 240–281.
- Daley, A., P. Burton, and S. Phipps, "Measuring poverty and inequality in Northern Canada," *Journal of Children and Poverty*, 2015, 21 (2), 89–110.
- , S. Pandey, S. Phipps, and B. Watson, "From the Food Mail Program to Nutrition North Canada: The impact on food insecurity among Indigenous and non-Indigenous families with children," *Canadian Journal of Economics*, 2024, 57 (1), 27–54.
- Duhaime, G. and R. Édouard, "Monetary poverty in Inuit Nunangat," *Arctic*, 2015, 68 (2), 223–232.
- Dunlavy, J., M. Lipai, and G. Baldwin, *Transportation in the North*, Ottawa, ON: Statistics Canada, 2009.
- Egger, D., J. Haushofer, E. Miguel, P. Niehaus, and M. Walker, "General equilibrium effects of cash transfers: Experimental evidence from Kenya," *Econometrica*, 2022, 90 (6), 2603–2643.
- Filmer, D., J. Friedman, E. Kandpal, and J. Onishi, "Cash transfers, food prices, and nutrition impacts on nonbeneficiary children," *World Bank Policy Research Working Paper*, 2018, (8377).
- Food Banks Canada, "Is Nutrition North Canada on Shifting Ground? A Food Banks of Canada Report," Available at: https://fcbblobstorage.blob.core.windows.net/wordpress/2022/02/Shifting-Ground_FINAL_EN.pdf 2016.
- Galloway, T., "Is the Nutrition North Canada retail subsidy program meeting the goal of making nutritious and perishable food more accessible and affordable in the North?," *Canadian Journal of Public Health*, 2014, 105 (5), 395–97.
- , "Canada's Northern food subsidy Nutrition North Canada: A comprehensive program evaluation," *International Journal of Circumpolar Health*, 2017, 76 (1), 1–19.
- and N. Li, "Pass-through of subsidies to prices under limited competition: Evidence from Canada's Nutrition North program," *Journal of Public Economics*, 2023, 225, 104971.
- and —, "Subsidies, cost shocks and heterogeneous pass-through: Evidence from Nutrition North Canada product-level price data," *Working Paper*, 2024.

- Ganong, P. and J. Liebman, "Enrollment: Disentangling Business Cycle Fluctuations and Policy Changes," *American Economic Journal: Economic Policy*, 2018, 10 (4), 153–176.
- Georgiev, B. and N. Li, "Traditional Indigenous foodways and retail subsidies: Evidence from the Northwest Territories Community Survey and Nutrition North Canada," 2024.
- Goldin, J., T. Homonoff, and K. Meckel, "Issuance and Incidence: SNAP Benefit Cycles and Grocery Prices," *American Economic Journal: Economic Policy*, 2022, 14 (1), 152–178.
- Harding, A. and X. St-Denis, *Low-Income Statistics for the Population Living On Reserve and in the North using the 2016 Census. Income Research Paper Series*, Ottawa, ON: Statistics Canada, 2021.
- Hastings, J. and E. Washington, "The First of the Month Effect: Consumer Behavior and Store Responses," *American Economic Journal: Economic Policy*, 2010, 2 (2), 142–162.
- and J. Shapiro, "How Are SNAP Benefits Spent? Evidence from a Retail Panel," *American Economic Review*, 2018, 108 (12), 3493–3540.
- Haushofer, J. and J. Shapiro, "The short-term impact of unconditional cash transfers to the poor: Experimental evidence from Kenya," *Quartley Journal of Economics*, 2016, 131 (4), 1973–2042.
- Hoynes, H., D. Schanzenbach, and D. Almond, "Long-Run Impacts of Childhood Access to the Safety Net," *American Economic Review*, 2016, 106 (4), 903–934.
- Inuit Tapiriit Kanatami, "Inuit perspectives on a Canadian poverty reduction strategy," Available at: https://www.itk.ca/wp-content/uploads/2018/08/ITK-Submission-on-CPRS_Final_Jan2018.pdf 2018.
- , "Inuit Nunangat food security strategy," Available at: <https://www.itk.ca/projects/inuit-nunangat-food-security-strategy> 2021.
- Jaravel, X., "What Is the Impact of Food Stamps on Prices and Product Variety? The Importance of the Supply Response," *AEA Papers and Proceedings*, 2018, 108, 557–561.
- Jones, D. and I. Marinescu, "Universal cash transfers and inflation," *National Tax Journal*, 2022, 75 (3), 627–653.
- Kesselman, J., "Policy options for retargeting the Canada child benefit," *Canadian Public Policy*, 2019, 45 (3), 310–328.

- Leung, J. and H. Seo, "How do government transfer payments affect retail prices and welfare? Evidence from SNAP," *Journal of Public Economics*, 2023, 217, 104760.
- Makioka, R., "Decomposing the Effect of SNAP," *Available at SSRN 3274096*, 2018.
- Milligan, K., "The tax recognition of children in Canada: Exemptions, credits and cash transfers," *Canadian Tax Journal*, 2016, 64 (3), 601–618.
- Minister of Public Works and Government Services Canada, "The Revised Northern Food Basket," Available at: https://publications.gc.ca/collections/collection_2008/inac-ainc/R3-56-2007E.pdf 2007.
- Najjarrezaparast, P. and K. Pendakur, "How did the Canada Child Benefit affect household spending?," *Canadian Public Policy*, 2021, 47 (4), 479–496.
- Natural Resources Canada, "The North," Available at: <https://www.nrcan.gc.ca/earth-sciences/geography/atlas-canada/selected-thematic-maps/16886> 2017.
- Naylor, J., B.J. Deaton, and A. Ker, "Assessing the effect of food retail subsidies on the price of food in remote Indigenous communities in Canada," *Food Policy*, 2020, 93, 101889.
- North West Company, "Management's Discussion & Analysis," Available at: <https://www.northwest.ca/uploads/documents/2017-04-11-managements-discussion-analysis-2016.pdf> 2016.
- Nutrition North Canada, "Nutrition North Canada: Reports," Available at: <https://www.nutritionnorthcanada.gc.ca/eng/1415647255632/1415647437113> 2023.
- Robitaille, J., E. Guénard, S. Lévesque, and G. Duhaime, "The Cost of Living in Nunavik in 2016: Research Report – Revised and Expanded Version," Available at: <https://www.nunivaat.org/doc/redactor/b28ff678-fc09-47ad-9841-800a011c9aed.pdf> 2018.
- Shapiro, J., "Is there a daily discount rate? Evidence from the food stamp nutrition cycle," *Journal of Public Economics*, 2005, 89 (2-3), 303–325.
- St-Germain, A. Fafard, T. Galloway, and V. Tarasuk, "Food insecurity in Nunavut following the introduction of Nutrition North Canada.," *Canadian Medical Association Journal*, 2019, 191 (2), 552–558.
- Statistics Canada, "Census Profile, 2021 Census of Population. 98-316-X2021001.," Available at: <https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/index.cfm?Lang=E> 2023.
- , "Indigenous Identity Population by Gender and Age: Canada, Provinces and Territories, Census Metropolitan Areas and Census Agglomerations. Table 98-10-0292-01," Available at: <https://doi.org/10.25318/9810029201-eng> 2024.

Tarasuk, V. and A. Mitchell, "Household food insecurity in Canada, 2017-2018," Available at: <https://proof.utoronto.ca/resource/household-food-insecurity-in-canada-2017-2018/> 2020.

Thaler, R., "Mental Accounting Matters," *Journal of Behavioral Decision Making*, 1999, 12 (3), 183–206.

6. Figures and Tables

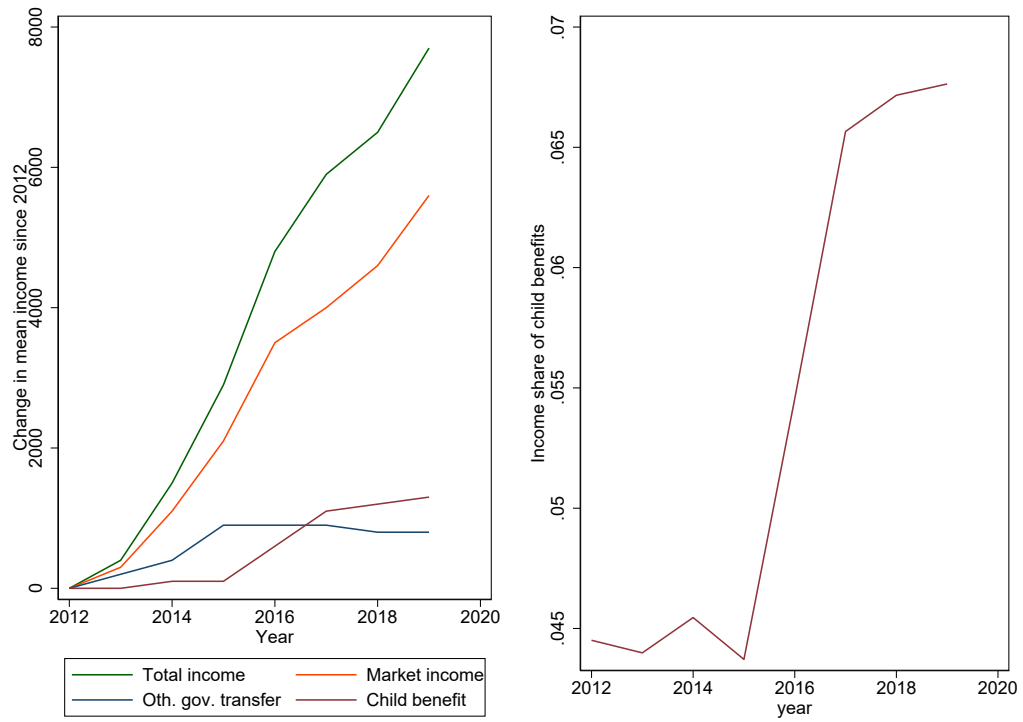


Figure 1: Mean community-level income changes

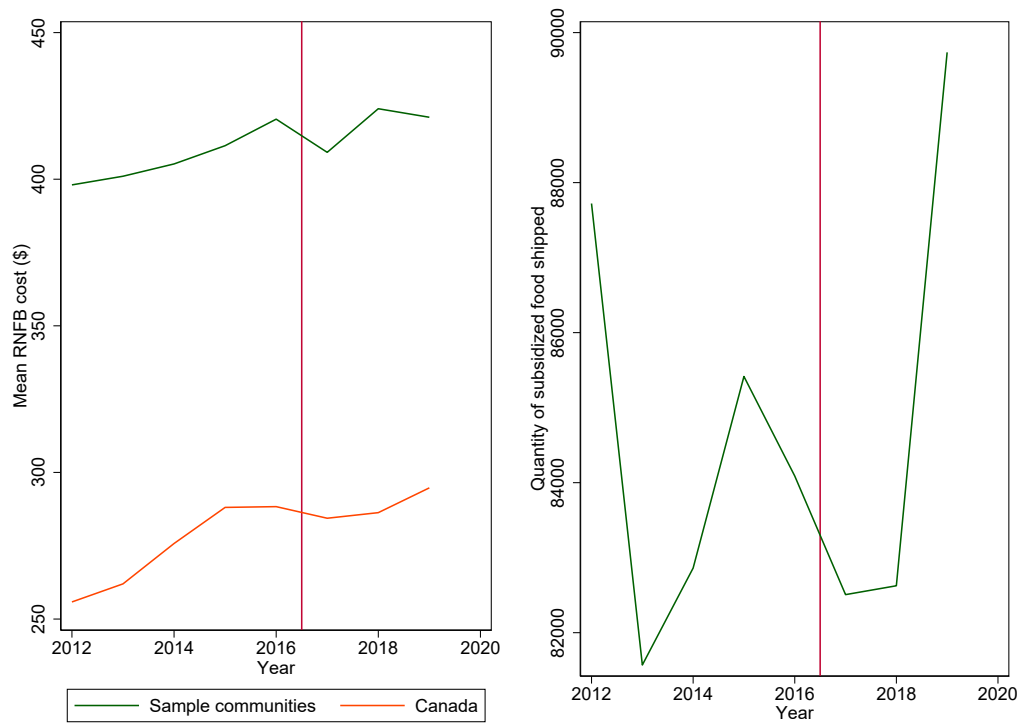


Figure 2: Prices & quantities

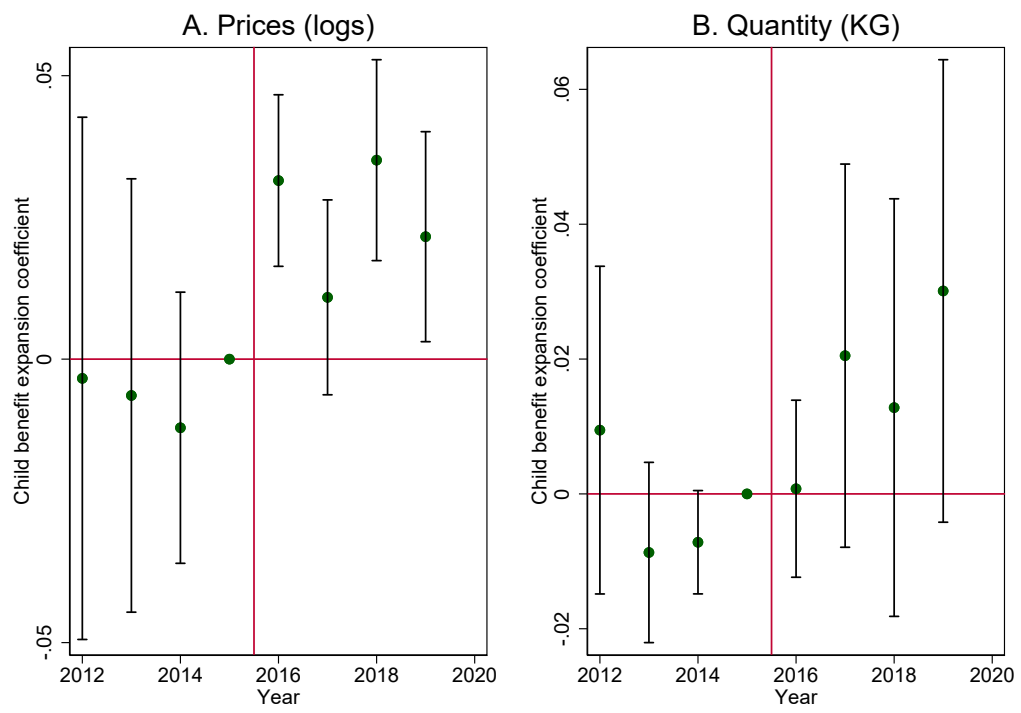


Figure 3: Child benefit expansion effects at different time points

Table 1: Estimated effects of income on prices & quantities in Northern communities

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ln(RNFB Price)				Total kilograms of subsidized food shipped			
ln(Synthetic RNFB)	0.445*** (0.074)	0.341*** (0.062)			62,779 (94,641)	-11,324 (69,551)		
Full subsidy	-0.070*** (0.017)	-0.074*** (0.018)	-0.079*** (0.018)	-0.073*** (0.018)	32,949** (13,921)	24,611 (17,459)	22,841 (18,554)	21,431 (19,052)
ln(gas prices)	0.037 (0.026)	0.009 (0.026)			21,655 (39,188)	-10,020 (32,047)		
ln(ave. total income)	0.010 (0.021)		-0.012 (0.022)					
ln(ave. market income)		-0.007 (0.014)		-0.009 (0.015)				
ln(ave. child benefits)		0.027*** (0.008)		0.025** (0.010)				
ln(ave. oth. gov.)		-0.010 (0.016)		-0.010 (0.017)				
Total income					0.004*** (0.001)		0.003*** (0.001)	
Total market income						0.003*** (0.001)		0.003*** (0.001)
Total child benefits						0.022 (0.017)		0.015 (0.020)
Total oth. gov.						-0.003 (0.010)		0.000 (0.010)
Constant	3.294*** (0.437)	4.076*** (0.349)	6.176*** (0.233)	6.043*** (0.213)	-283,605 (696,747)	304,064 (493,313)	198,921*** (25,638)	205,955*** (37,035)
Community FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	No	Yes	Yes	No	No	Yes	Yes
R-squared	0.876	0.882	0.888	0.891	0.990	0.990	0.991	0.991

Standard errors clustered by community in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. We are not able to report the number of observations but our sample is an unbalanced panel containing up to 87 communities and up to 8 years per community (ranging from 2012-2019). The synthetic RNFB and gas price variables are dropped with the inclusion of time fixed effects, given they have no within-community variation.

Table 2: Heterogeneous effects of child benefits on prices & quantities in Northern communities

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ln(RNFB Price)				Total kilograms of subsidized food shipped			
Full subsidy	-0.085*** (0.018)	-0.082*** (0.019)	-0.079*** (0.018)	-0.091*** (0.018)	-31,196 (37,347)	1,263 (25,935)	13,965 (19,439)	-42,501 (37,432)
ln(ave. child benefits)	0.007 (0.017)	0.036*** (0.011)	0.327 (0.242)	0.199 (0.241)				
ln(ave. child benefits) × Monopoly	0.035** (0.017)			0.024 (0.018)				
ln(ave. child benefits) × Inuit		-0.028 (0.018)		-0.018 (0.019)				
ln(ave. child benefits) × \bar{y}_{2012}			-0.029 (0.024)	-0.017 (0.024)				
Total child benefits					0.002 (0.012)	0.025 (0.024)	0.097 (0.126)	-0.322 (0.256)
Total child benefits × Monopoly					0.091** (0.041)			0.078** (0.038)
Total child benefits × Inuit						-0.046** (0.022)		-0.046* (0.027)
Total child benefits × Y_{2012}							-0.008 (0.013)	0.035 (0.027)
Constant	6.133*** (0.236)	6.126*** (0.225)	6.106*** (0.216)	6.200*** (0.232)	237,702*** (39,722)	220,361*** (39,663)	209,637*** (39,549)	273,176*** (49,655)
Community FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.894	0.893	0.892	0.895	0.993	0.991	0.991	0.994

Standard errors clustered by community in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. We are not able to report the number of observations but our sample is an unbalanced panel containing up to 87 communities and up to 8 years per community (ranging from 2012-2019). Other income sources are also included as controls but not reported.