Online Appendix:

"Can Automatic Retention Improve Health Insurance Market Outcomes?"

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Appendix A: Data, Sample, and Methods Details

CommCare Dataset   Our main dataset is complete (de-identified) administrative enrollment data for the CommCare program, linked to insurer claims. This data was obtained via a data use agreement with the Massachusetts Health Connector, the administrator of CommCare. We thank the Connector for its assistance in providing and interpreting the data. The dataset is structured at the enrollee x month level, with information on individual income group, location, demographics, and plan enrollment during that month. To this, we merge on information on monthly spending and (at an annual level) medical diagnoses and risk scores calculated from the linked claims dataset.

Starting from the full data that spans fiscal years 2007-2014, we limit our sample to the fiscal year 2010-13 period when the auto retention policy was consistently in effect.[1] (CommCare's fiscal year runs from July-June, so this represents in calendar time July 2009 to June 2013.) We next limit the sample to enrollee-month observations in either the 100-150% of poverty "treatment" group (subject to auto retention) or the 150-200% of poverty "control" group (not subject to the policy).

Sample Limitations for Measuring Auto Switching Rate   Our goal is to measure the rate of automatic plan switching due to the automatic retention policy. However, a key limitation of the data is that they do not include a direct flag for plan switching due to the policy. Instead, we infer its use from the (much higher) rates of "mid-year" plan switching – outside of the beginning-of-year open enrollment period when switching is allowed – for the 100-150% of poverty group versus other groups.

Aside from open enrollment, there are a few exceptions that allow for mid-year switching. We observe and exclude from our sample instances of the two main exceptions: changes in geographic area or income group. These exclusions – which we make whether or not the enrollee actually switched plans – drop 0.4% (geography changes) and 3.2% (income changes) of member-month observations, of which only 1.6% represent switches. Enrollees are also technically allowed to switch plans within two months of initially enrolling in the market. We chose not to drop these cases because they represent a relatively large share of the sample (12%) and switching rates are not much higher in these months, even in the control group. Enrollees are also allowed to "re-

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[1] We make these drops for the following reasons. The auto retention policy was not in effect in 2007 (when the cheapest plan was not free for the treatment group) or 2008 (when all plans were free for the treatment group, making lapsing irrelevant). We exclude 2009 because auto retention appears to have been used inconsistently during the year and because there was an extended open enrollment period (months 1-3) that makes it difficult to separate out automatic from active switching. We exclude fiscal 2014 both because is a short year (July 2013 to December 2013) and because its latter months interact with the implementation of the ACA.

switch" plans in the 60 days following an auto-switch; we retain these observations in the sample because this is an outcome of interest.

Table A.1 shows summary statistics for the final sample, separately for the treatment (100-150% of poverty) and control (150-200% of poverty) groups. The two groups face different premiums – e.g., the cheapest plan is $0 in the treatment group versus $39-40 in the control group – which leads to differential selection into participation in the market (Finkelstein, Hendren, and Shepard, 2019). This selection can account for some of the age and medical spending differences for the two groups. These differences should not have a major impact on mid-year plan switching rates aside from the auto retention policy. Moreover, the mid-year switching rate is so low for the control group (0.2%), that all of our results would be similar if we simply analyze patterns for the treatment group.

Measuring Switching and Excess Plan Switching Rates The key variable for our analysis is the plan switching rate, defined as the share of individuals continuously enrolled between months t-1 and t who switch plans between those months. We calculate switching rates both for the open enrollment period (month 1) when active switching is allowed for any reason, and for months 2-12 of the year ("mid-year" months) when active switching is typically not allowed.

As described above, we drop observations with known exceptions that allow for mid-year switching (changes in income group or service area). In addition, an individual who has lapsed and been auto-switched may "re-switch" back to their old plan within 3 months if they pay their premium debt. To avoid counting re-switches in our estimates of auto retention (e.g., for Figure 1), we do not count mid-year switches within 3 months of another plan switch for either the treatment or control group. (These observations are retained in the sample but recoded as non-switches for calculating the switching rate.) We instead report re-switching as a separate outcome in Table B.2.

During open enrollment, switching rates are similar for the treatment and control groups (6.5% and 6.9%, respectively). However, "mid-year" switching rates in the other 11 months are an order of magnitude higher for the treatment group (2.2% per month) relative to the control group (0.24%). This is consistent with our understanding of the data generating process. The low control group switching rate reflects a few hard-to-observe exceptions that allow for mid-year switching, while the much higher rate for the treatment group reflects the auto retention policy.

To measure the excess switching rate formally, we run the following OLS regression:

$$1\{SwitchPlans_{it}\} = \alpha_t + \beta \cdot 1\{TreatGrp_{it}\} + \varepsilon_{it} \tag{1}$$

where α_t are time fixed effects that capture baseline switching rates in the control group, and β (the coefficient of interest) captures the excess switching rate for the treatment group. In some analyses, we run regression (1) separately for certain subsets of plans (e.g., plans that transition from free to non-free) or subsets of time periods (spike month vs. non-spike months).

Supplementary Dataset: Mass. APCD A key limitation of the CommCare data is that we cannot observe insurance outside of the CommCare market. A question of particular interest is whether the auto retention policy leads to *duplicate* coverage in both CommCare and outside private

insurance. To assess this, we draw on information from the Massachusetts All-Payer Claims Database (APCD).[2] The APCD lets us observe coverage in both CommCare and nearly all other health insurance in the state – with the sole important exception being traditional Medicare, which is unlikely to be relevant for the non-elderly, non-disabled population in CommCare. The APCD includes a synthetic ID that follows individuals across insurers, letting us observe duplicate coverage.

Using the APCD's member eligibility file, we construct an enrollment history dataset for people ever enrolled in CommCare that also includes their coverage history in other insurance. The data construction requires some care. Each record in the ME file describes a member's enrollment spell in a particular health plan, with variables describing the characteristics of the health plan (such as the plan's carrier), and the start- and end-dates of the spell. We use the variables "Insurance Type Code" (ME003) and "Special Coverage" (ME031) as CommCare indicators. Both are categorical variables that indicate a CommCare enrollment; however, since they do not always coincide, we define our sample of CommCare enrollment spells as those for which *either* variable indicates CommCare.

An additional challenge is that many records for BMC enrollments have missing values for the end-date, specifically coded as "12/31/2099" or "12/31/2199." We find that these are often (in about 98% of cases) accompanied by another record with an identical start-date and a non-missing end-date. In these cases, we disregard the record with the missing end-date in the construction of our panel. In the remaining 2% of cases, we truncate the end-date to be 12/31/YYYY, where YYYY is the year of the report ("eligibility year", given by the variable ME004).

We validate the construction of this dataset by comparing it to the true CommCare enrollment data. The numbers line up quite closely. The APCD CommCare subset matches within 3% the member-month counts in the true CommCare data for fiscal years 2009-2013 (10.7 million in the APCD compared to 10.4 million true CommCare member-months). Enrollment across plans and over time also line up quite closely.

With this panel dataset in hand, we turn to non-CommCare enrollment spells in the APCD. We do not have an external dataset to validate the non-CommCare enrollment, so we take the spell descriptors in the APCD at face-value. We define dual enrollment as a month in which a CommCare member is also enrolled in non-CommCare health insurance.

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[2] We use the APCD version 3.0, which includes calendar years 2009-2013. The APCD, which is not linked to the CommCare data, was obtained under a separate data use agreement with Massachusetts' Center for Health Information and Analysis.
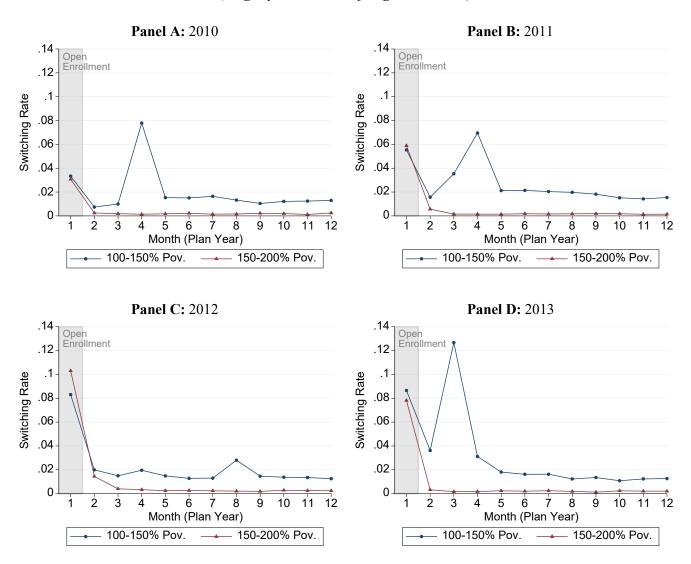
Table A.1: Sample Summary Statistics

		100-150% Poverty *(Treatment Grp.)*	150-200% Poverty *(Control Grp.)*
		(1)	**(2)**
Enrollment and Switching			
Total enrollment per month		35,108	28,067
Terminations per month		1,811	1,752
Duration Enrolled (months): Median		14.0	13.0
	Mean	19.7	18.0
Share Switch Plans:	Open Enr.	6.53%	6.87%
	Mid-Year	2.17%	0.24%
Consumer Premiums ($/month, after subsidies)			
Lowest-Premium Plan		$0.00	$39.29
Other Plans:	Average	$8.03	$53.85
	Max	$34.00	$91.00
Consumer Attributes and Costs			
Age (years)		42.6	44.6
Share Male		42.1%	40.6%
Income (% of Poverty Line)		127.5	174.5
Risk Score (HHS-HCC)		1.037	1.128
Medical Costs ($ per month)		$334.70	$376.80

NOTE: The table shows summary statistics for our sample, separately for the treatment group subject to the auto retention policy (100-150% of poverty) and the control group not subject to the policy (150-200% of poverty). Risk score (HHS-HCC) refers to the HHS Hierarchical Condition Category risk adjustment method used in the ACA Marketplaces. We impute this risk score for each enrollee at an annual level based on demographics and diagnoses observed on their claims and normalize mean risk score to 1.0 for the whole market. Medical costs refer to average monthly medical spending (insurer-paid and cost sharing) during the enrollment spell.
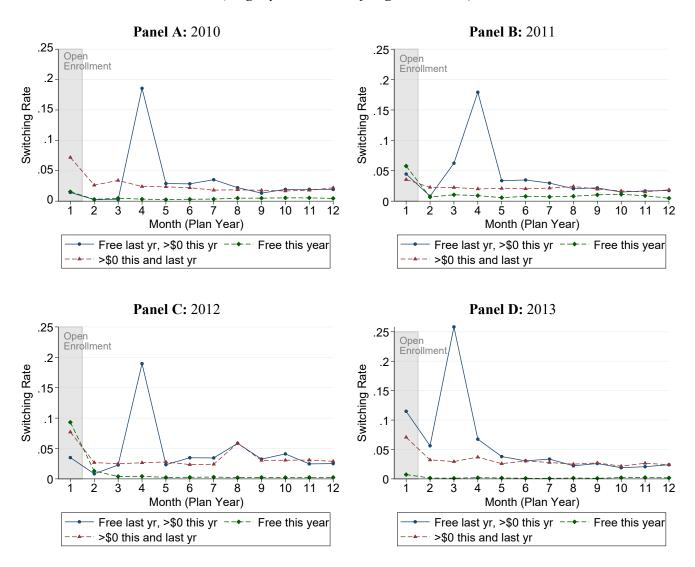
Appendix B: Additional Figures and Tables

Figure B.1: Share of Enrollees Switching Plans, by Month
(single-year version of Figure 1 in text)

Panel A: 2010

Panel B: 2011

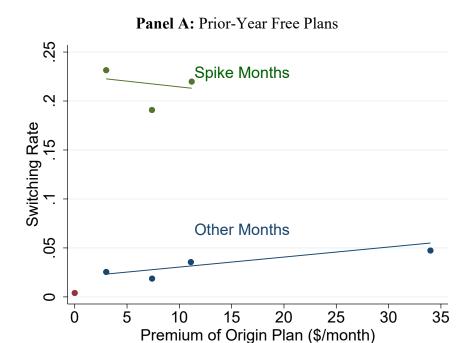**Panel C:** 2012

Panel D: 2013

NOTE: The figure shows an annual version of Figure 1 in the body text for each year 2010-13. The figure shows the share of sample enrollees who switch plans by month of the year for the treatment group subject to auto retention (100-150% of poverty, in blue) and control group not subject to the policy (150-200% of poverty, in red). Open enrollment, when switching is typically allowed, is shaded in gray. Higher switching rates in all other ("mid-year") months for the treatment group indicate the impact of the auto retention policy.

Figure B.2: Plan Switching Rates, by Origin Plan Free/Non-free Status
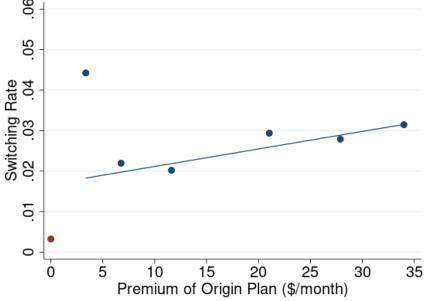*(single-year version of Figure 2 in text)*

NOTE: The figure shows an annual version of Figure 2 in the body text for each year 2010-13. The figure breaks down switching rates for the treatment group (100-150% of poverty) by the free/non-free status of the origin plan to understand the source of the large switching spike in Figure 1. It shows monthly switching rates out of three types of plans: (1) plans that were free last year but become non-free this year (blue solid line), (2) plans that were non-free (>$0) both last year and this year (red dashed), and (3) plans that are free this year, regardless of their premium last year. Consistent with the results in Figure 2, these figures indicate that all of the large switching spike in month 3 or 4 comes from enrollees in plans that change from being free to non-free at the start of the new year.

Figure B.3: Mid-Year Switching Rates vs. Origin Plan Premium Amount

Panel A: Prior-Year Free Plans

Panel B: Prior-Year Non-Free Plans

NOTE: The figure shows binned scatter plots of the relationship between mid-year switching rates and the monthly premium of the origin plan during the current year. In all cases, $0 current premium is included as a separate category (shown in red). Based on the patterns in Figure 2, the relationship is broken down by plans that were free in the prior year (panel A) versus non-free plans in the prior year (panel B). Panel A is further broken down between the spike months (month 3 or 4, depending on the year) and non-spike months.

Table B.1: Prevalence of Mid-Year Switchers, Treatment vs. Control

	100-150% Poverty (Treatment Grp.) (1)	150-200% Poverty (Control Grp.) (2)
Share of member-years w/ mid-year switch	11.96%	1.32%
Share, weighted by months enrolled in yr.	15.27%	1.51%
Avg. Members per Year	66,582	55,643

NOTE: The table shows the share of member-years from the pooled 2010-2013 sample that experience at least one mid-year switch, for the 100-150% of poverty group (column 1) and the 150-200% of poverty group (column 2), both un-weighted and weighted by the number of months observed in each year (excluding months with a change in geographic area or income group).

Table B.2: Characteristics of Mid-Year Switchers vs. Other Enrollees

	100-150% Poverty Enrollees				
	Mid-Year Switchers (1)	All Others (2)	Diff. (s.e.) (3)		Combined Population (4)
Share of Enrollment Months	15.3%	84.7%	--		100%
Demographics and Risk					
Income (% of Poverty Line)	126.9	127.6	-0.7	(0.1)**	127.5
Age (years)	39.1	43.2	-4.1	(0.1)**	42.6
Share Male	0.429	0.419	+0.009	(0.003)**	0.421
Chronic Illness	0.576	0.609	-0.034	(0.003)**	0.604
Cancer	0.069	0.100	-0.030	(0.002)**	0.095
Risk Score (HHS-HCC)	1.016	1.041	-0.025	(0.017)	1.037
Medical Spending ($/month)					
Total spending	$310.0	$339.2	-$29.2	(5.6)**	$334.7
6 months prior to switch	$325.9	n/a	--		
6 months after switch	$298.7	n/a	--		
Duration and Switching					
Duration enrolled: Prior to auto-switch	11.9	n/a	--		
After auto-switch	9.9	n/a	--		
Re-Switch Plans (w/in 3 mon.)	0.153	n/a	--		

NOTE: The table shows average characteristics in the treatment group (100-150% of poverty) for mid-year switchers (column 1) versus all other enrollees (column 2). Column (3) shows the difference between groups, and column (4) shows the average for the combined population of switchers and all others. Medical status variables (chronic illness and cancer) are based on diagnoses observed on claims for each year. Risk score (HHS-HCC) refers to the HHS Hierarchical Condition Category risk adjustment method used in the ACA Marketplaces. We impute this risk score for each enrollee at an annual level based on demographics and diagnoses observed on their claims. Medical costs refer to average medical spending (insurer-paid and cost sharing) per month enrolled; for switchers, we also show this separately for the (up to) 12 months enrolled prior to and after the mid-year switch. Share re-switch plans refers to the share of mid-year switchers who take the opportunity to switch plans again within three months.