

SVOC in Newly Constructed Homes

EDA

Phaletes

Basic information

Detection Frequency

Chemical	Detection_Frequency
DEP	0.9000000
DPP	0.7857143
DIBP	0.8357143
DnBP	0.7857143
BzBP	0.9214286
DEHP	0.9142857
DnOP	0.7928571
DiNP	0.8000000

Count of Observations for each house

House_ID	count	House_ID	
<chr>	<int>	<chr>	
NHAQS-008	1	NHAQS-019	4
NHAQS-009	1	NHAQS-022	3
NHAQS-010	1	NHAQS-023	2
NHAQS-011	1	NHAQS-028	5
NHAQS-012	1	NHAQS-029	5
NHAQS-013	1	NHAQS-030	5
NHAQS-014	2	NHAQS-031	5
NHAQS-015	2	NHAQS-032	5
NHAQS-016	2	NHAQS-033	1
NHAQS-018	2	NHAQS-034	5

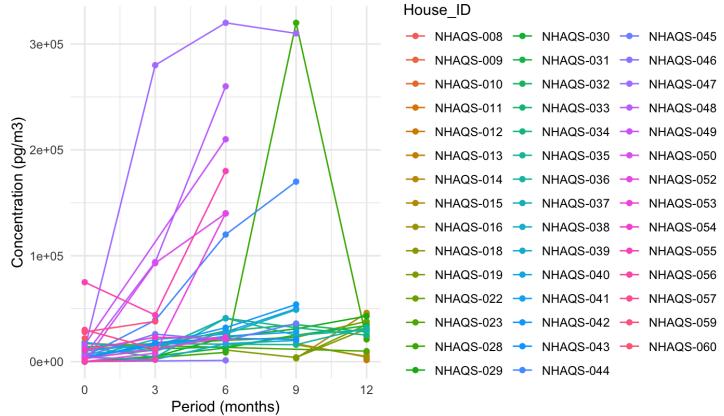
NHAQS-035	4	NHAQS-045	4
NHAQS-036	5	NHAQS-046	2
NHAQS-037	3	NHAQS-047	4
NHAQS-038	5	NHAQS-048	3
NHAQS-039	4	NHAQS-049	2
NHAQS-040	4	NHAQS-050	4
NHAQS-041	4	NHAQS-052	3
NHAQS-042	4	NHAQS-053	3
NHAQS-043	4	NHAQS-054	3

House_ID	count
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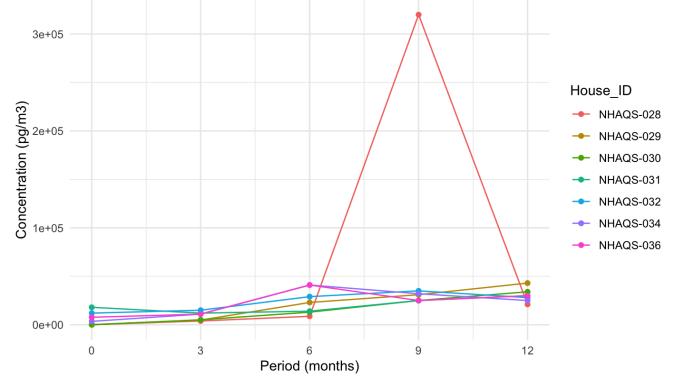
NHAQS-056	2
NHAQS-057	2
NHAQS-059	2
NHAQS-060	1

DEP

Concentration of DEP

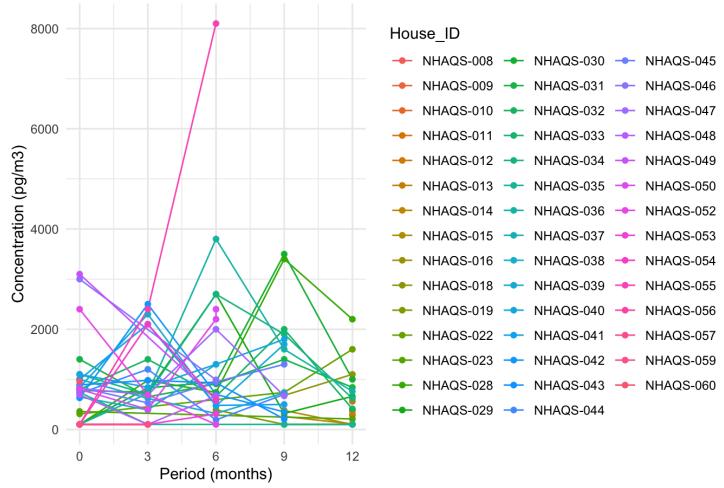


Concentration of DEP for complete houses

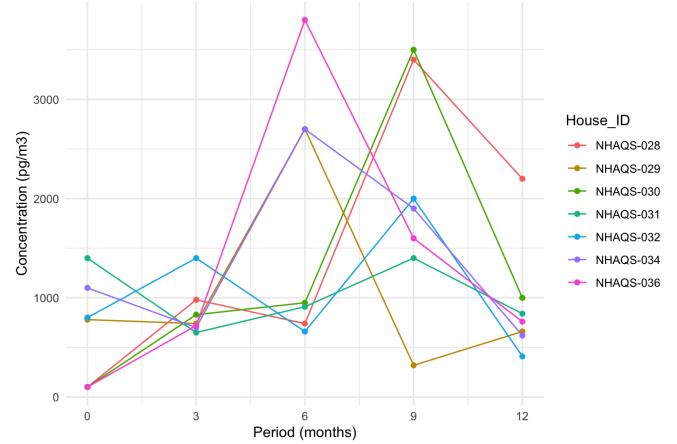


DPP

Concentration of DPP

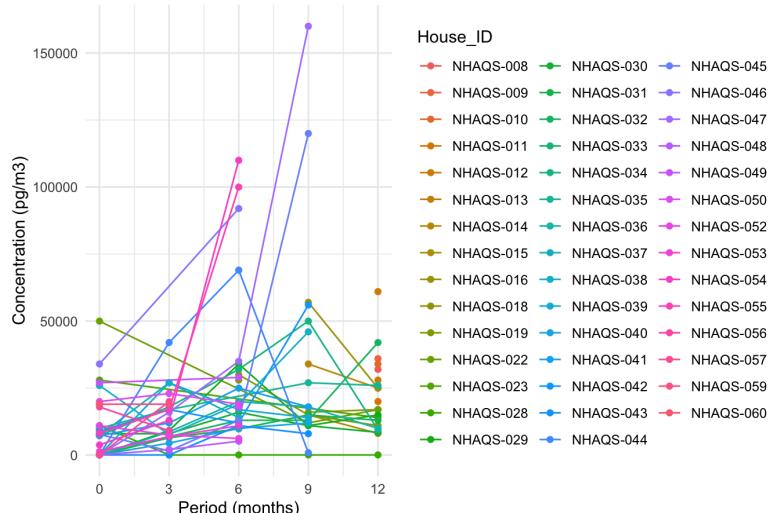


Concentration of DPP for complete houses

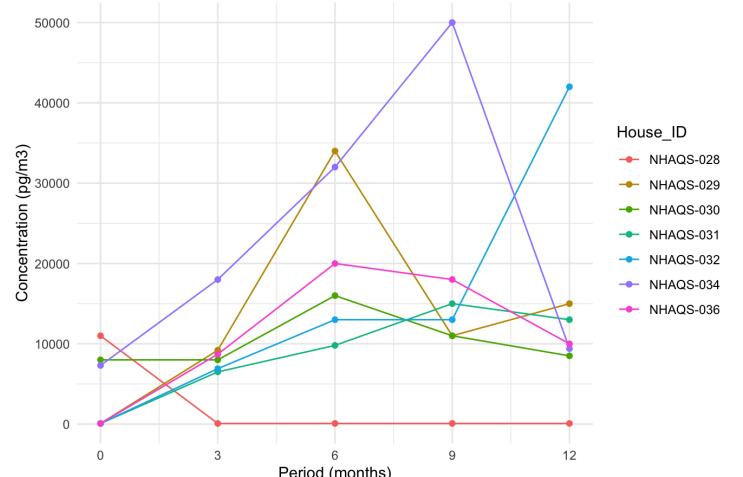


DiBP

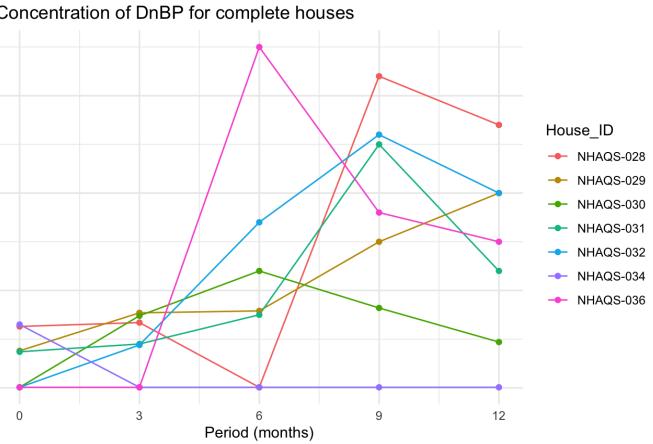
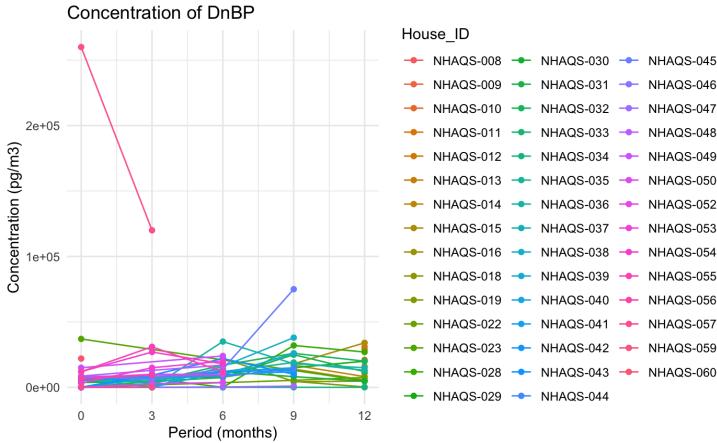
Concentration of DiBP



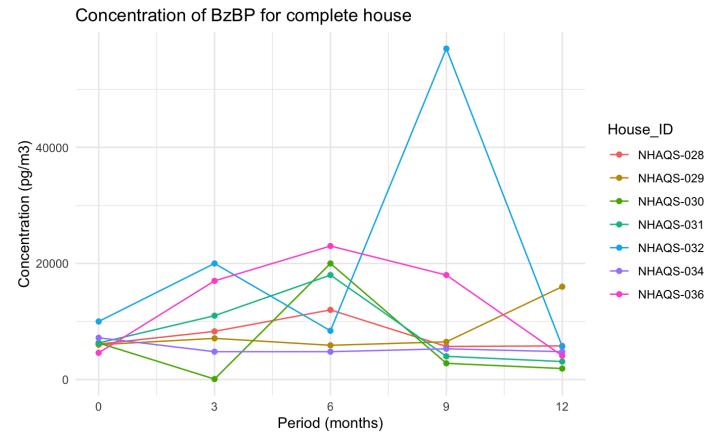
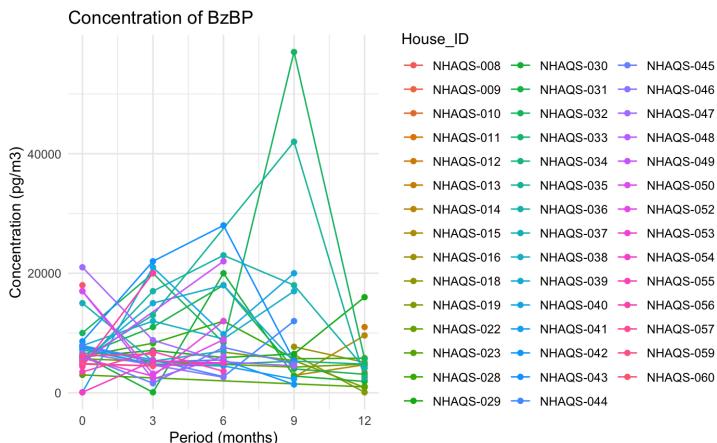
Concentration of DiBP for complete houses



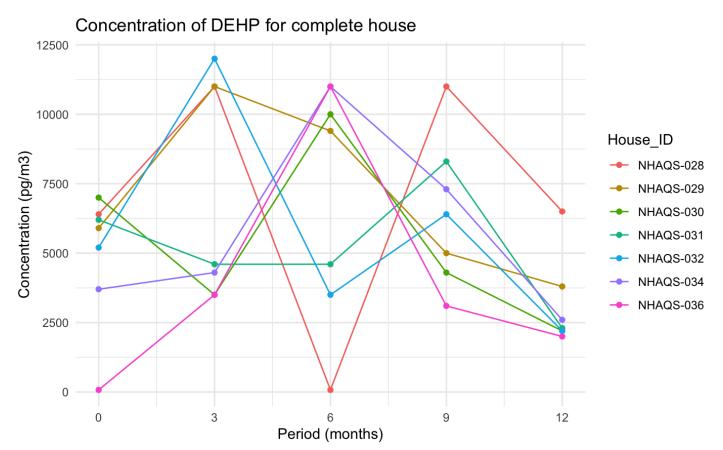
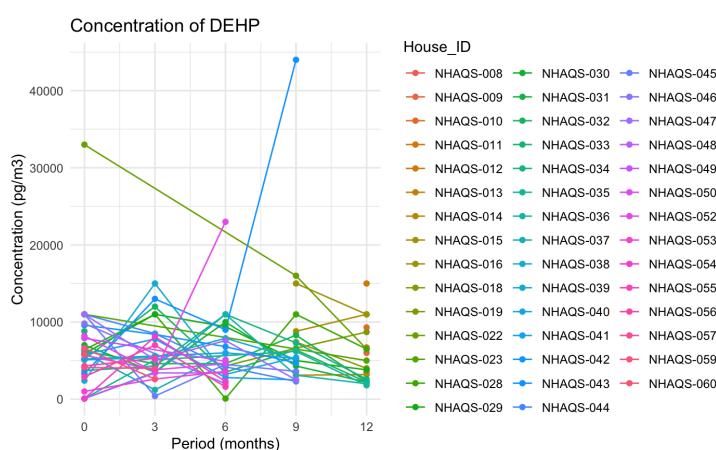
DnBP



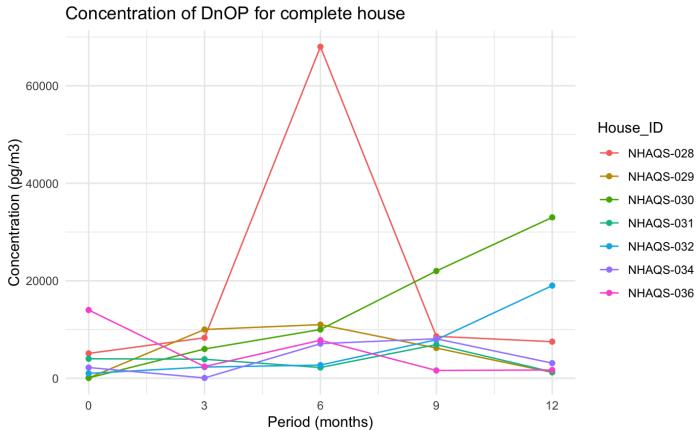
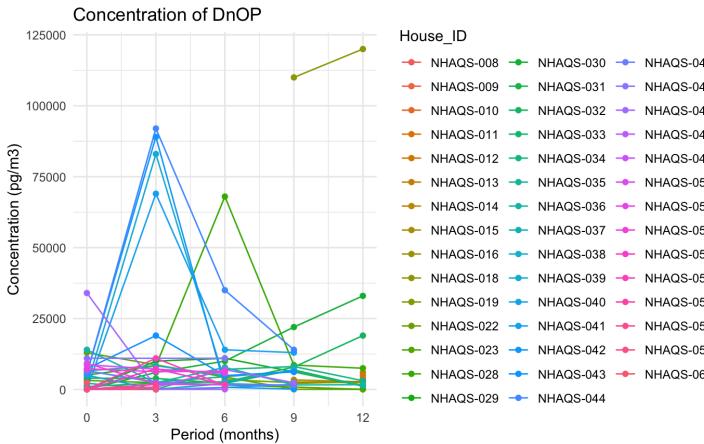
BzBP



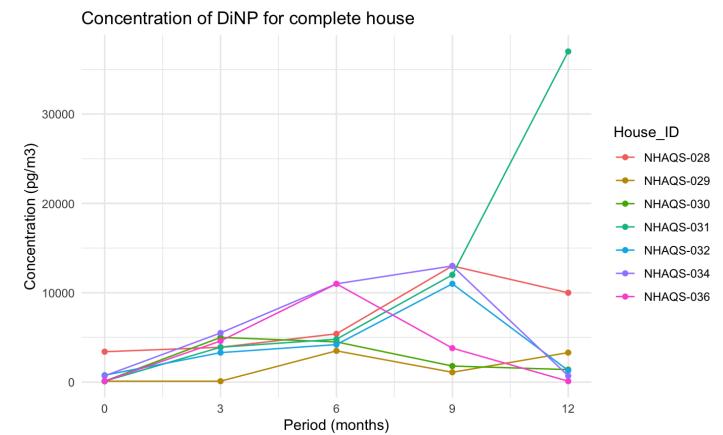
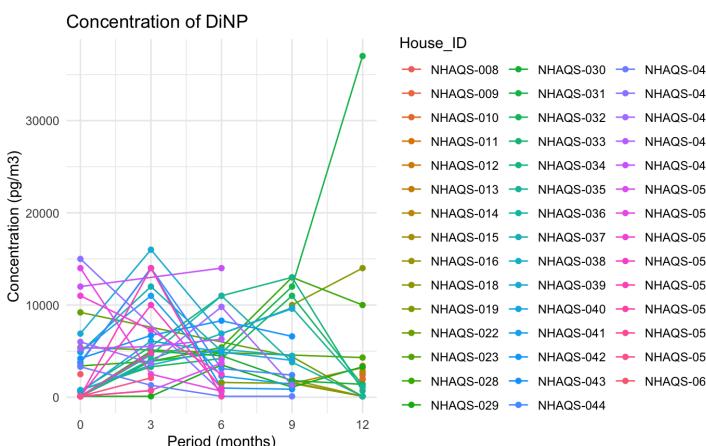
DEHP



DnOP

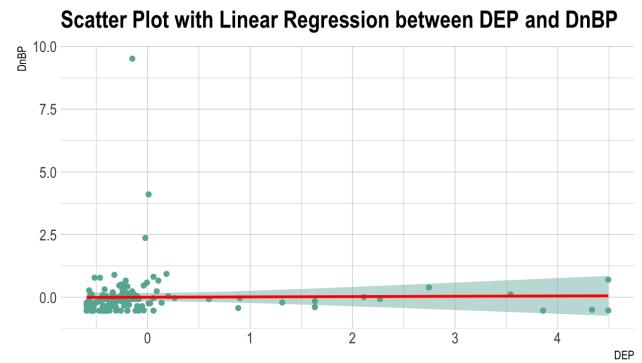
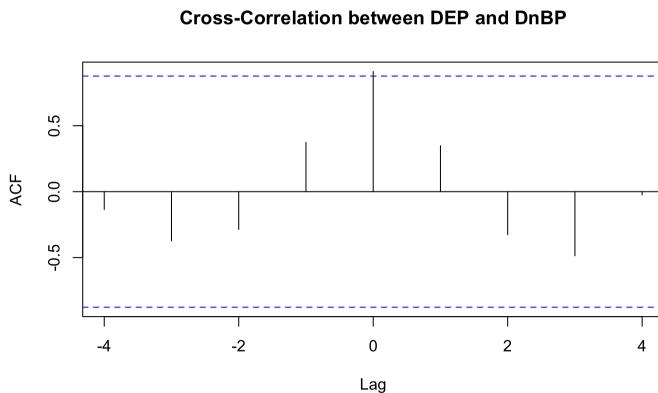


DiNP

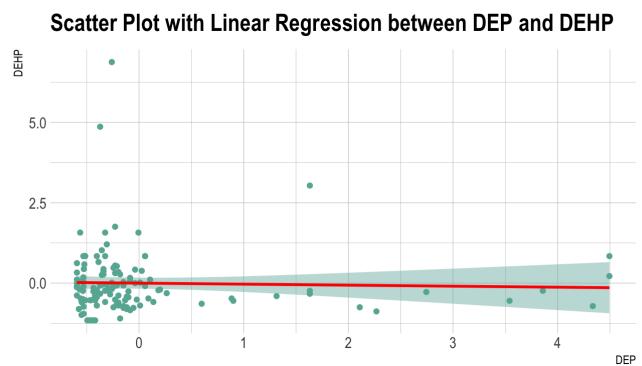
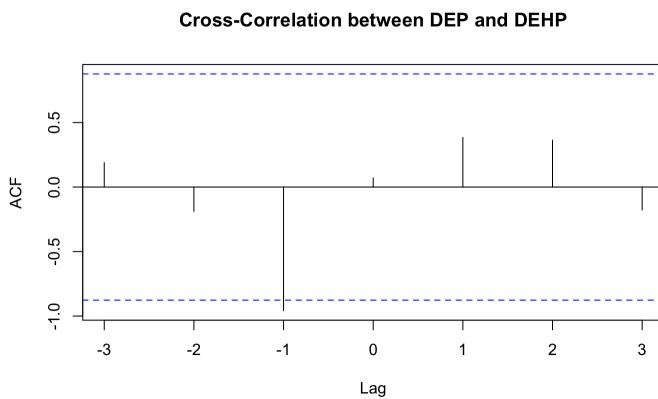


Correlation Study

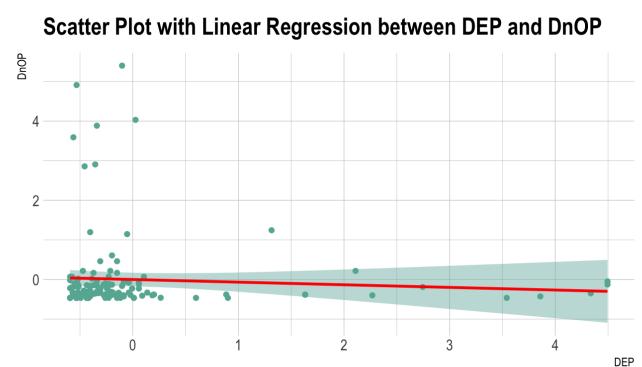
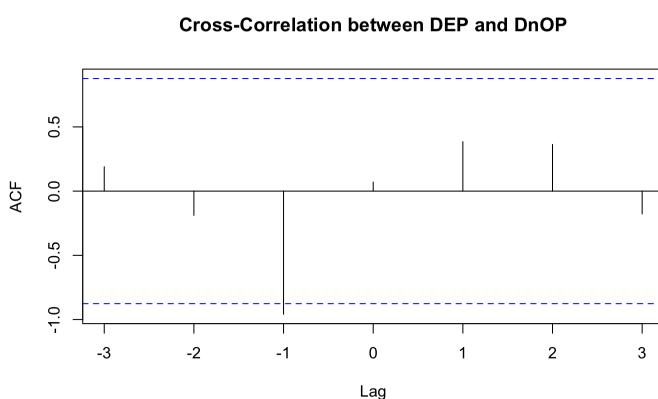
DEP-DnBP



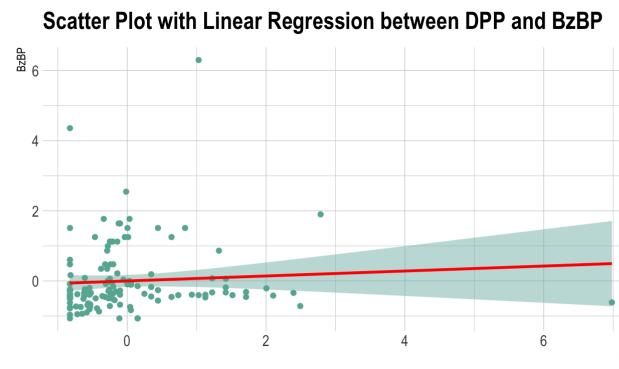
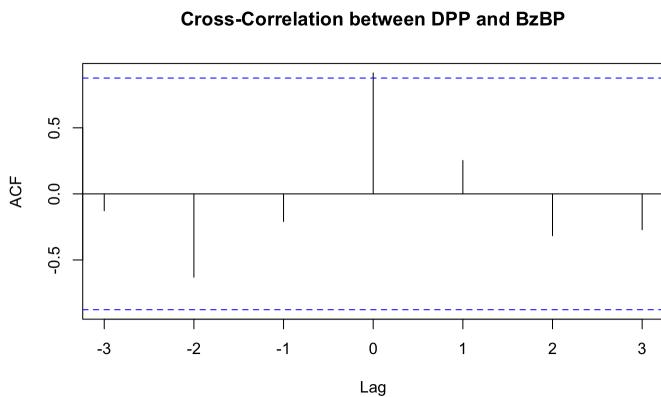
Dep-DEHP



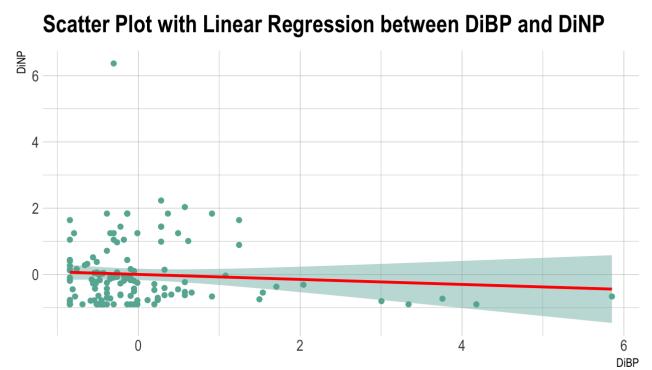
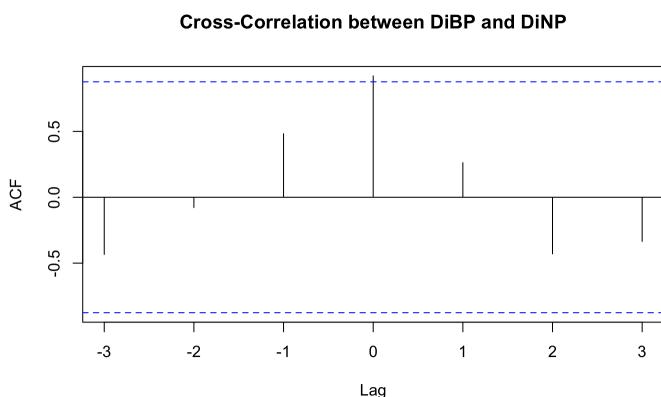
DEP-DnOP



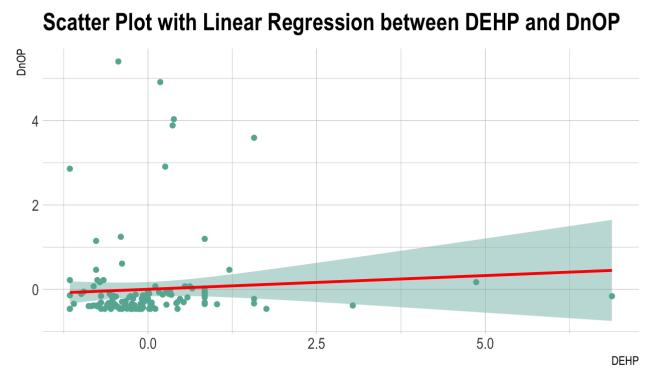
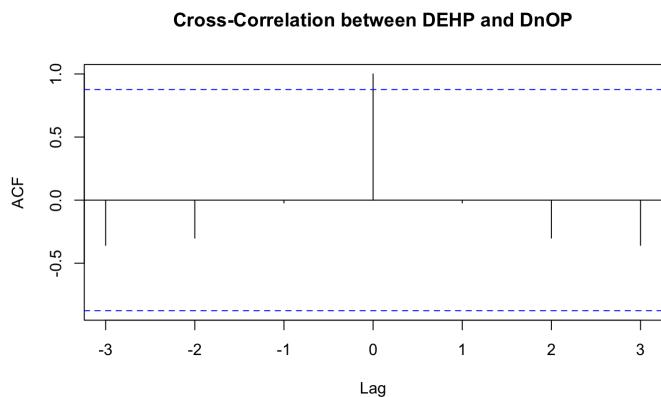
DPP-DzBP



DiBP-DiNP



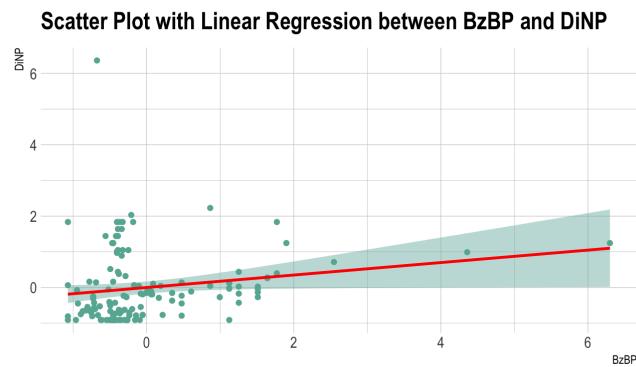
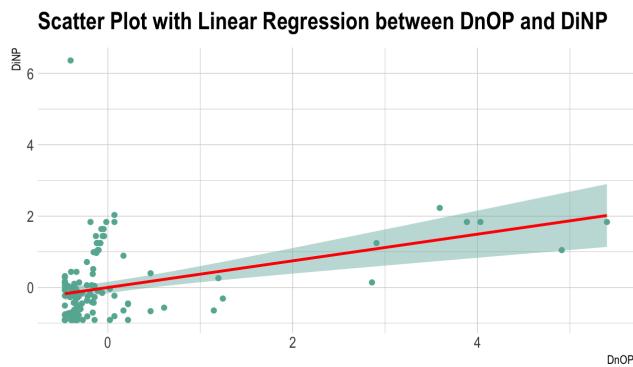
DEHP-DnOP



Positive Lags (1, 2, 3): second series is lagged behind the first series

Negative Lags (-1, -2, -3): first series is lagged behind the second series

Given that most pairs of chemicals have significant effects at lag 0 according to the ACF, it indicates that the simultaneous interaction of chemical concentrations is more impactful than any lagged interactions. The significant effect at lag 0 implies that the concentrations of the chemicals are most strongly correlated at the same time point. This may suggest there are common external factors influencing the concentrations of both chemicals simultaneously.



DnOP-DiNP and BzBP-DiNP are two groups that look like has some weak linear relationship. This could also suggest that both chemicals might originate from the same source or process. For example, if they are byproducts of industrial manufacturing or products of a parent compound, their levels might rise and fall together.

Spikes:

DEP:

- **house28 period9**

DPP:

- **house36 period6**
- **house30 period9**
- **house28 period9**

DiBP:

- **house44 period6**

BzBP:

- **house35 period9**
- **house32 period9**

DnOP:

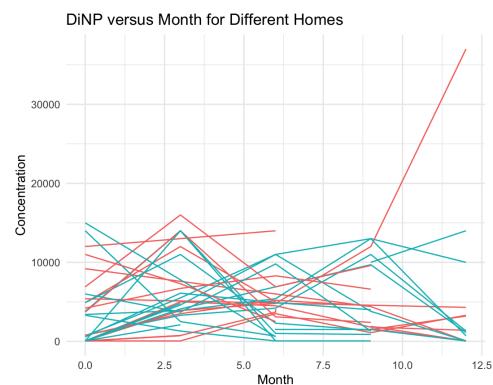
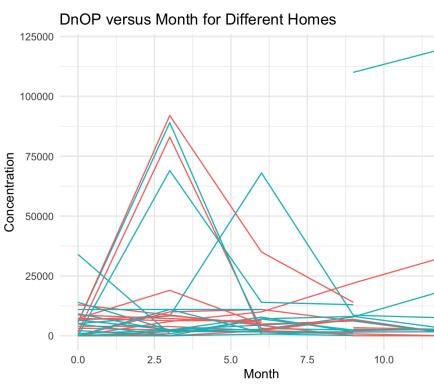
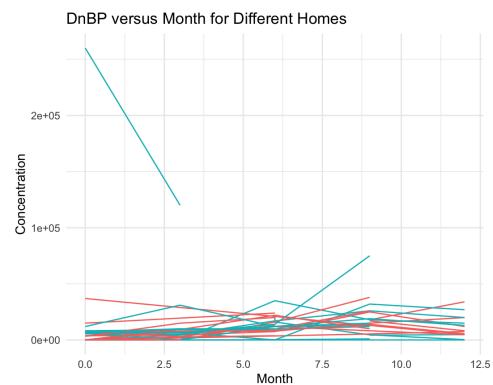
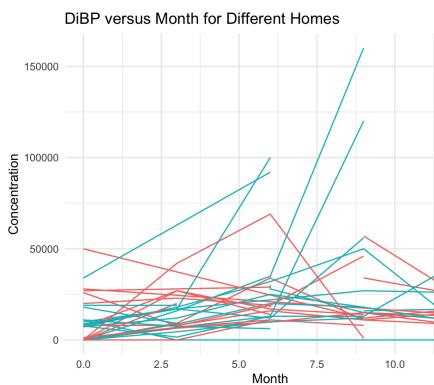
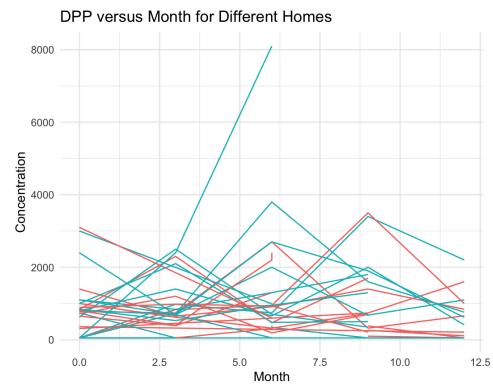
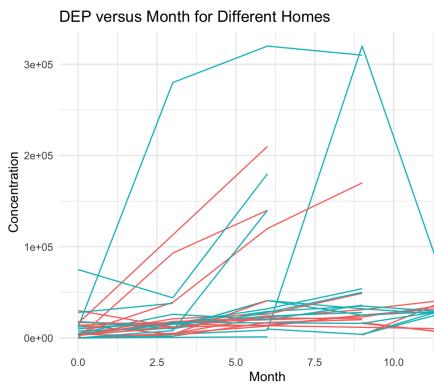
- **house28 period6**
- **house44 period3**
- **house42 period3**
- **house39 period3**
- **house41 period3**

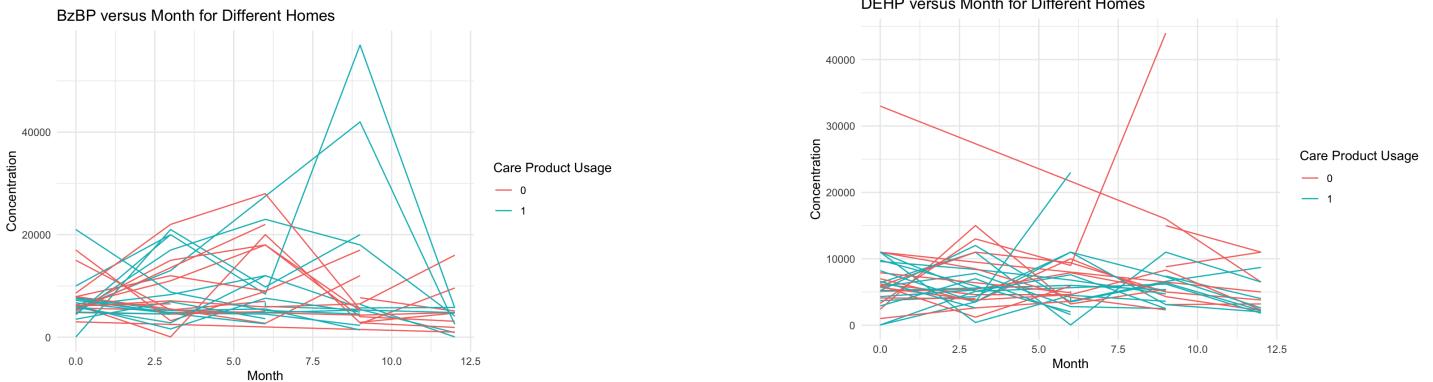
Factor Analysis

fixed factors

Personal care product usage:

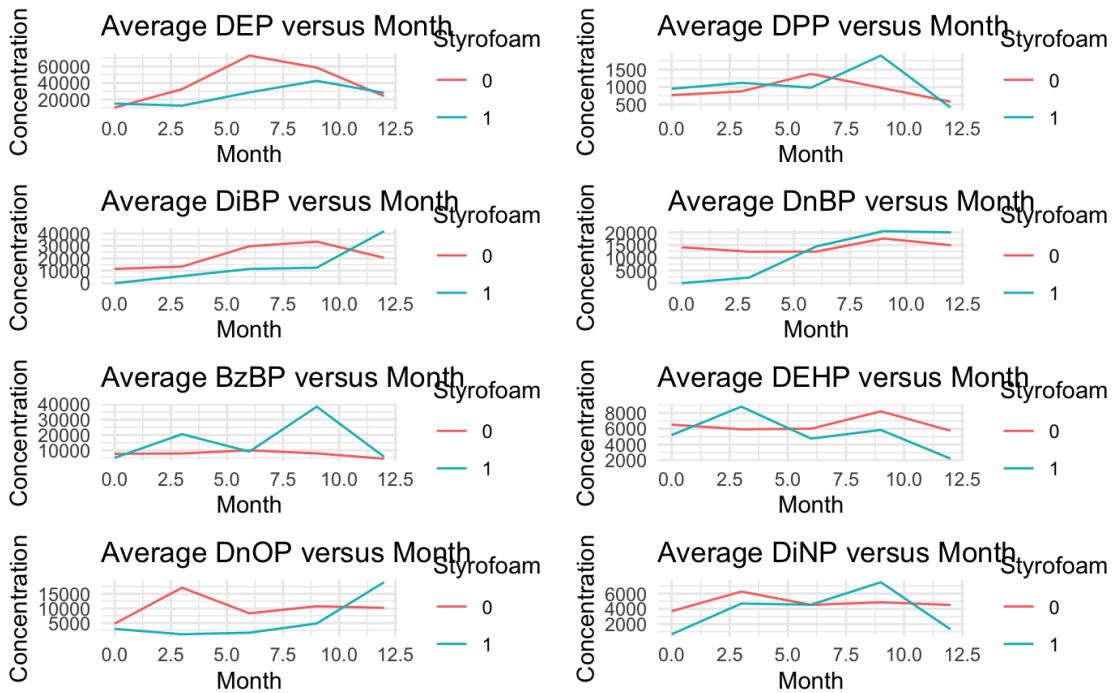
Use of personal care products (Nail polish, perfume, hair spray, etc; combine into one column): I combine them in one column, presence of any one of them, recorded as 1 else 0.



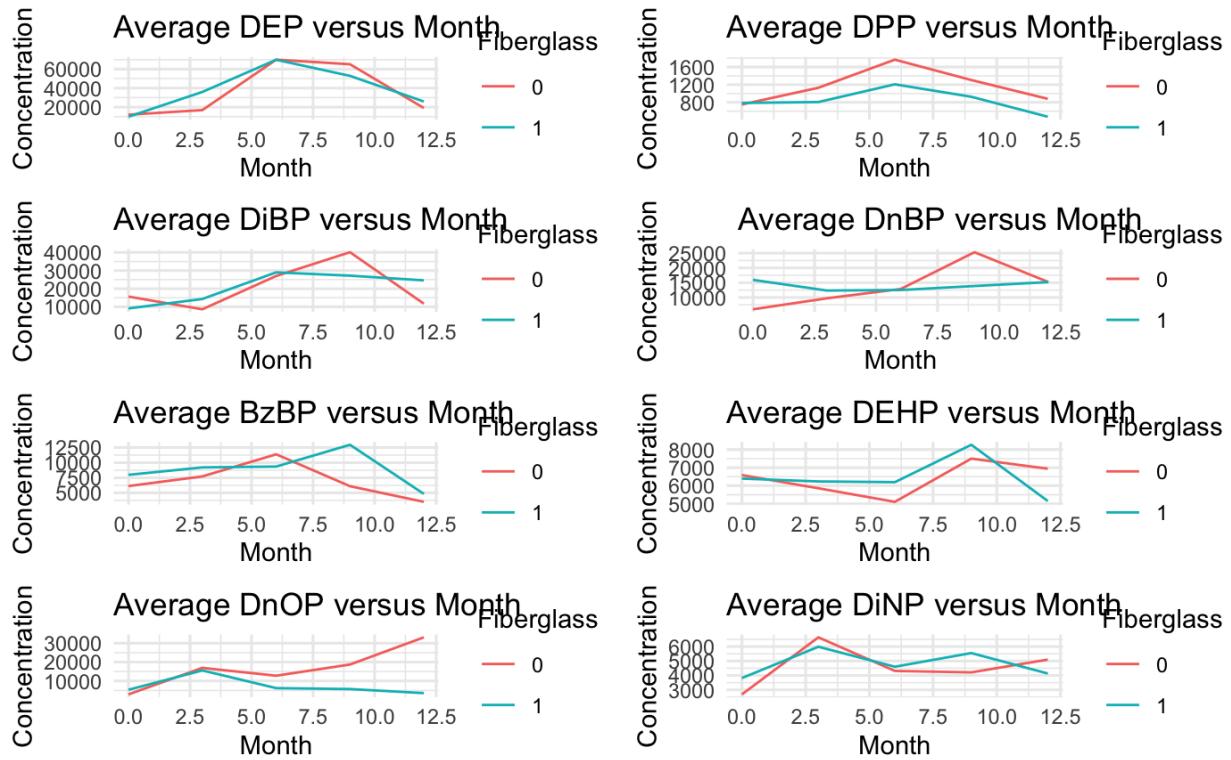


Insulation type:

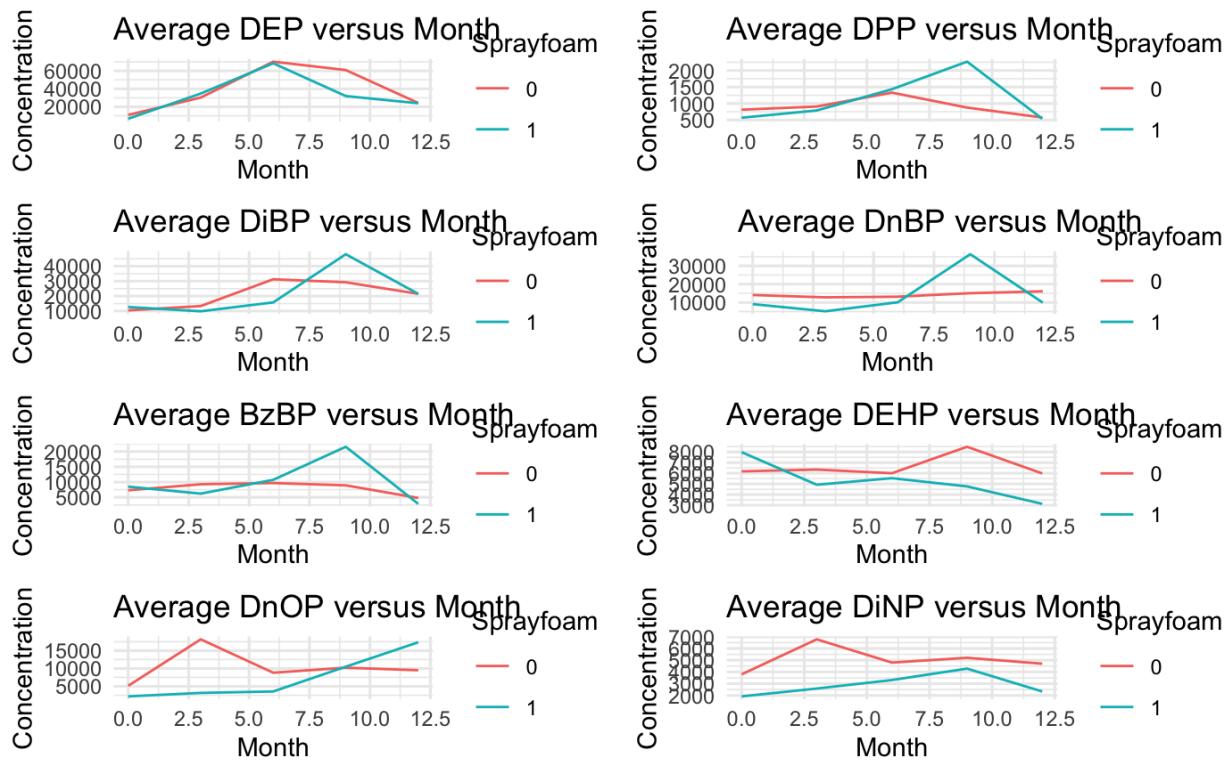
1. Styrofoam



2. fiberglass



3. sprayfoam



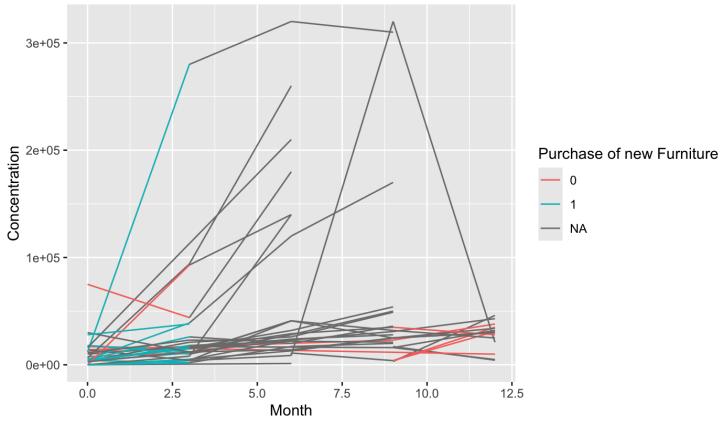
Styrofoam and fiberglass are commonly considered prone to release airborne.(?)

Houses with styrofoam insulation tend to show a more pronounced increase or a more stable upward trend in airborne particle levels compared to houses without styrofoam insulation. However, a house can have multiple insulation types at the same time, the variables are being controlled perfectly in this case.

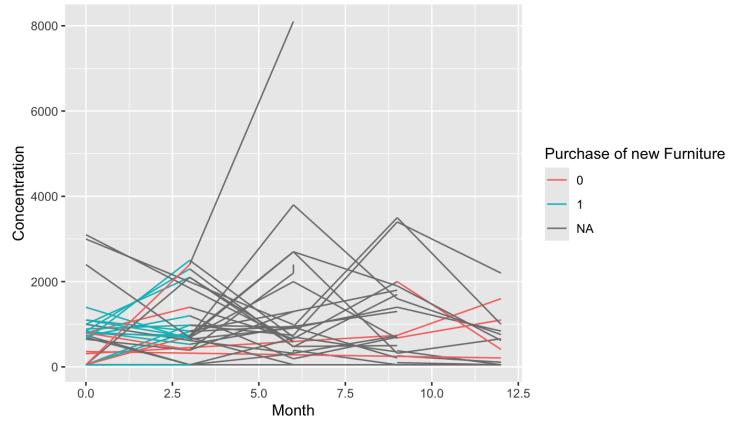
Dynamic Factor

new Furniture

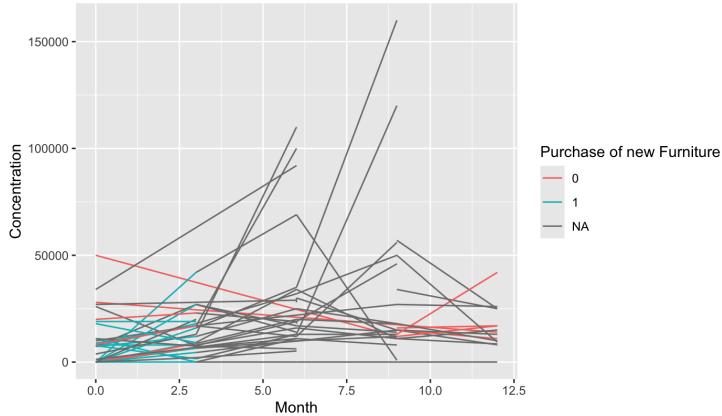
DEP versus Month for Different Homes with corresponding purchase of new furniture



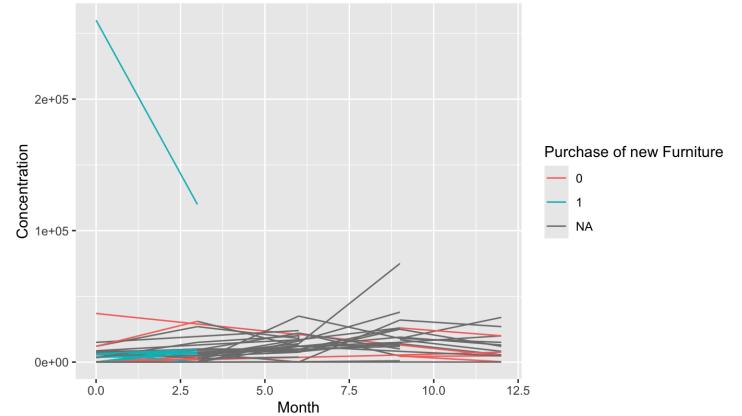
DPP versus Month for Different Homes with corresponding purchase of new furniture



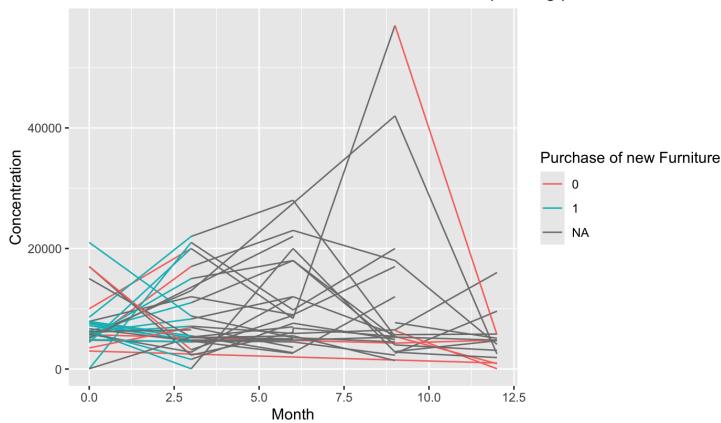
DiBP versus Month for Different Homes with corresponding purchase of new furniture



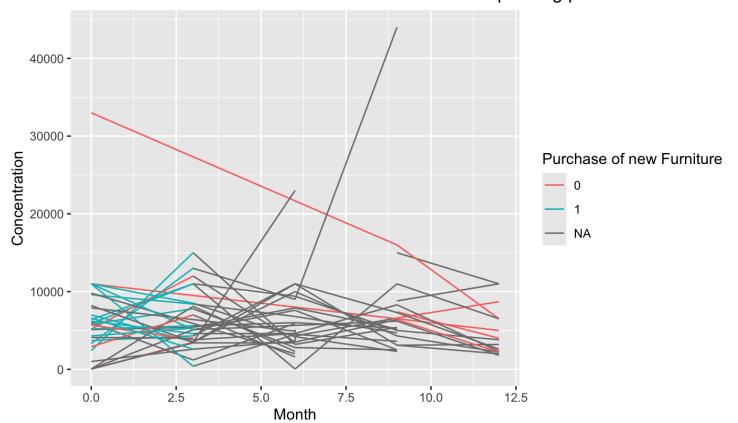
DnBP versus Month for Different Homes with corresponding purchase of new furniture



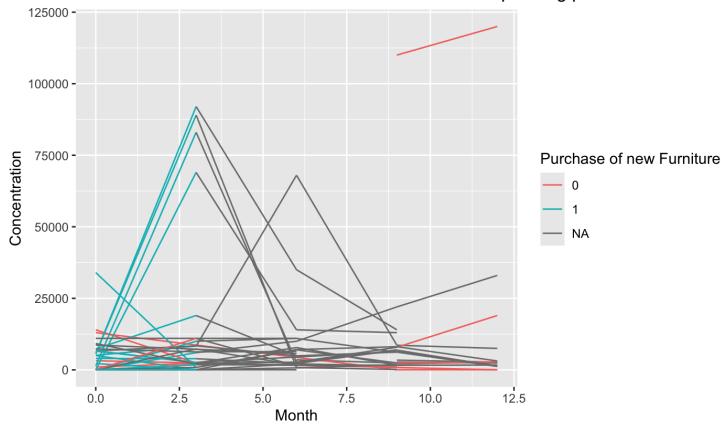
BzBP versus Month for Different Homes with corresponding purchase of new furni



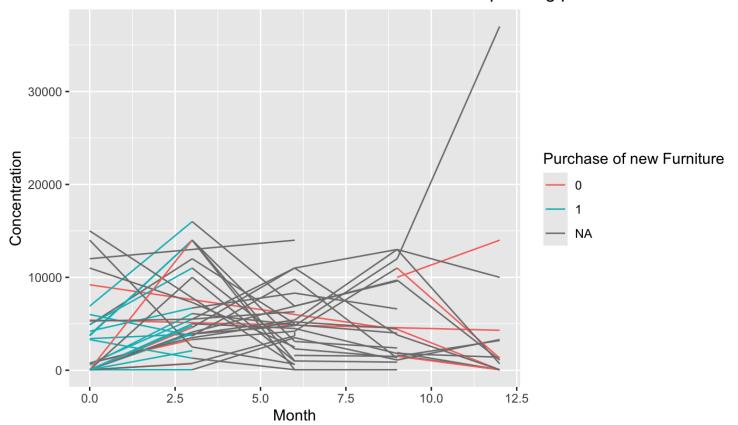
DEHP versus Month for Different Homes with corresponding purchase of new furni



DnOP versus Month for Different Homes with corresponding purchase of new furni

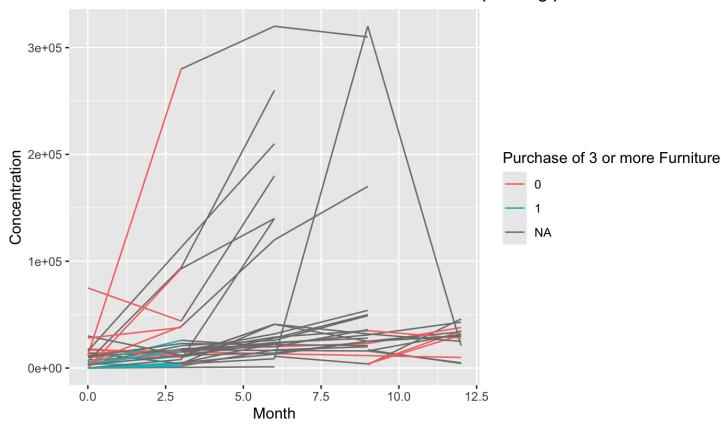


DiNP versus Month for Different Homes with corresponding purchase of new furni

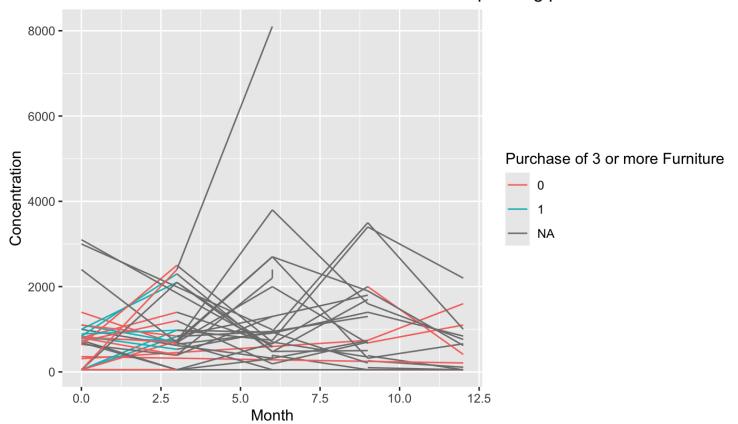


more than 3 new Funitures

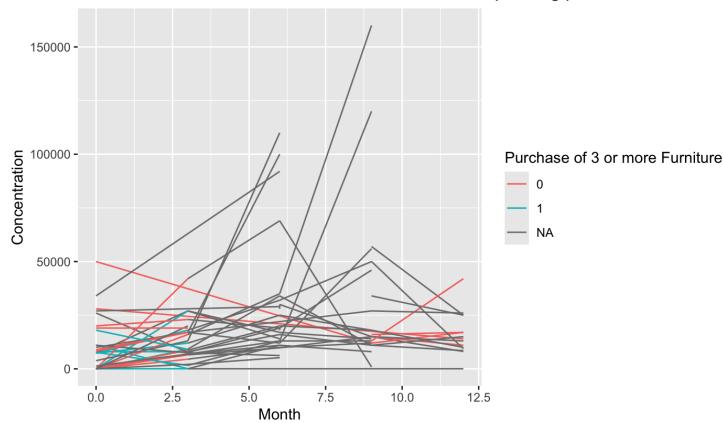
DEP versus Month for Different Homes with corresponding purchase of new furnit



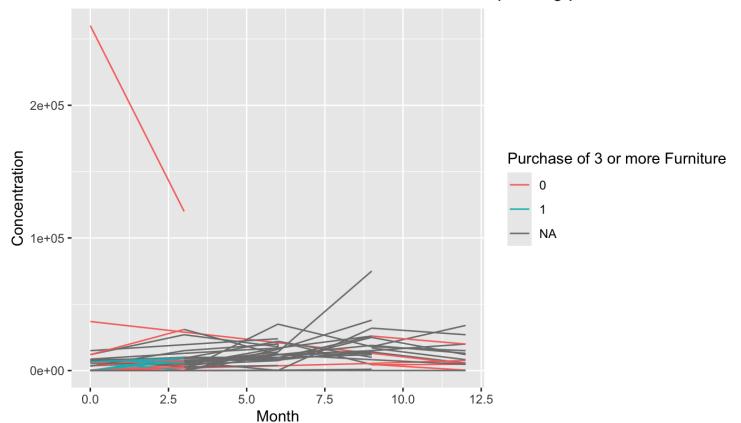
DPP versus Month for Different Homes with corresponding purchase of new furnitu



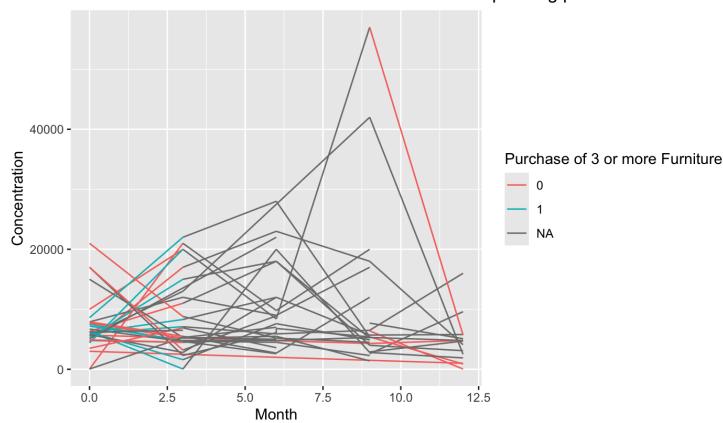
DiBP versus Month for Different Homes with corresponding purchase of new furn



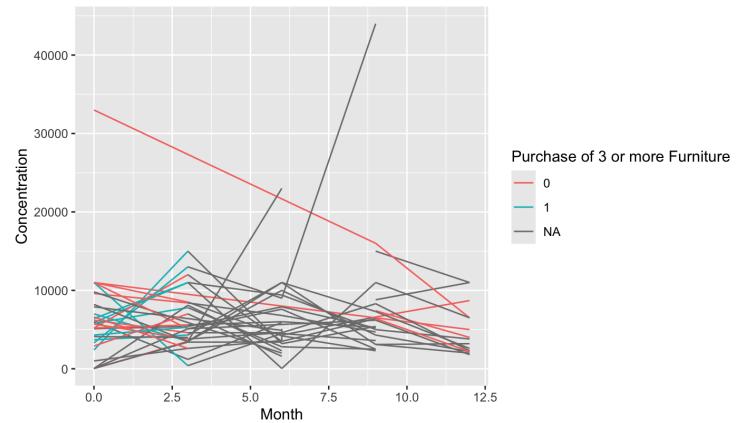
DnBP versus Month for Different Homes with corresponding purchase of new furn



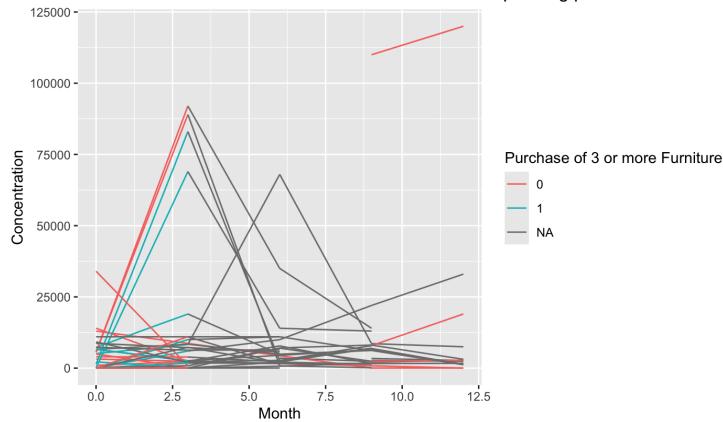
BzBP versus Month for Different Homes with corresponding purchase of new furni



DEHP versus Month for Different Homes with corresponding purchase of new furn



DnOP versus Month for Different Homes with corresponding purchase of new furn



DiNP versus Month for Different Homes with corresponding purchase of new furni

