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%macro avgftr(n=, dsetout=);
*download COMPUSTAT tax variables;
RSUBMIT;
data ftr1;
set comp.funda;
where indfmt = 'INDL' and datafmt = 'STD' and consol = 'C' and popsrc = 'D';
if fyear<1987 then STR=0.46;
if fyear=1987 then STR=0.4;
if 1988<=fyear<=1992 then STR=0.34;
if 1992<fyear<=2017 then STR=0.35;
if fyear>2017 then STR=0.21;
if txdfc=. then txdfc=txdi-txdfed-txds;
if txfo=. then txfo=txc-txfed-txs;
if pifo=. then pifo=pi-pidom;
if pidom=. then pidom=pi-pifo;
keep gvkey cik datadate fyear pi pifo pidom sale txfed txfo txdfed txdfc STR;
run;
*download segment variables;
PROC SQL;
CREATE TABLE segment
AS SELECT    gvkey, datadate, geotp, sales
FROM        comp.WRDS_SEGMERGED
WHERE       stype='GEOSEG'
Group BY    gvkey, datadate having srcdate = min(srcdate)
order by    gvkey, datadate;
QUIT;
proc sql;
create table segment1
as select distinct gvkey, datadate, geotp, sum(sales) as total_sale
from segment
group by gvkey, datadate, geotp;
quit;
proc transpose data=segment1 out=segment2
(rename=(_1=obsolete _2=dsale _3=fsale));
    by gvkey datadate;
    id geotp;
    var total_sale;
run;
proc sql;
create table ftr2
as select a.*, b.dsale, b.fsale
from ftr1 as a left join segment2 as b
on a.gvkey = b.gvkey and a.datadate=b.datadate;
quit;
*clean data;
data ftr2;
set ftr2;
if dsale=. then dsale=sale-fsale;
if fsale=. then fsale=sale-dsale;
run;
PROC download data=ftr2 out=work.ftr2;
run;
endrsubmit;

*Create 5-year sums;
proc sql;
    create table ftr3

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as select distinct a.*, sum(b.pifo) as cum_pifo, sum(b.pidom) as
cum_pidom, sum(b.txfo) as cum_txfo,
sum(b.txdfo) as cum_txdfo,
sum(b.str) as cum_STR, sum(b.pi) as cum_pi, sum(b.sale) as cum_sale,
sum(b.dsale) as
cum_dsale, sum(b.fsale) as cum_fsale
from ftr2 as a, ftr2 as b
where a.gvkey=b.gvkey and 0<=intck('year', b.datadate, a.datadate)<&n
group by a.gvkey, a.datadate having count(b.pifo)=&n and count(b.txfo)=&n
and count(b.txdfo)=&n and count(b.fsale)=&n;
quit;

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*create long-run income shifting variables;

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data &dsetout (keep=gvkey cik datadate fyear AvgFTR AvgFETR Lowavgftr
Highavgftr AvgROS AvgFROS AvgDROS fsale_sale AvgPIFO_PI);

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set ftr3;

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if cum_pifo>0;

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if cum_pidom>0;

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AvgFTR=(cum_txfo+cum_txdfo)/cum_pifo-(cum_STR)/&n;

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if AvgFTR<=0 then Lowavgftr=1; else Lowavgftr=0;

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AvgROS=cum_pi/cum_sale;

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AvgFROS=cum_pifo/cum_fsale;

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if -1<=AvgFTR<=1;

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run;

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%mend avgftr;

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