# Private Transfers

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# Private Transfer Profiles

Private Transfers (TF) - now same as Intervivos

IntraHH (TFW) + InterHH (TFB)

IntraHH Inflow (TFWI) | IntraHH Outflow (TFWO) | Inflow (TFBI) | Outflow (TFBO)

| Edu (TFWEI) | Health (TFWHI) | Housing (TFWAI) | Other (TFWXI) | Saving (TFWSI) |
|---|---|---|---|---|

| Edu (TFWEI) | Health (TFWHO) | Housing (TFWAO) | Other (TFWXO) | Saving (TFWSO) |
|---|---|---|---|---|

And bequests (TFBB)

# Interhousehold Transfers (TFB)

- Flows for which the giver and receiver are in different households
  - Gifts to family/friends
  - Alimony/child support
  - Remittances
  - Charitable contributions (NPISH intermediary)
  - Others?
- Flows are between household heads
  - Of course, age profile is still per individual
  - Double counting?  Perhaps…

# TFB Age Profile

- Variables described on previous slide found in consumption and expenditure surveys
- No variables in your survey?  Get creative!
  - Government records of remittance flows?
  - Research studies on TFB flows for particular populations?
    - Young adults setting up new households
    - Elderly needing support of adult children
    - Elderly with generous pension benefits spreading the wealth to adult children

# TFB Control Total

- Macro control for TFB is net private transfers (TF) macro control.
- Why?  Because TF=TFW+TFB and we know that aggregate TFW must equal zero.
- No macro controls for TFBI or TFBO, just the net TF.

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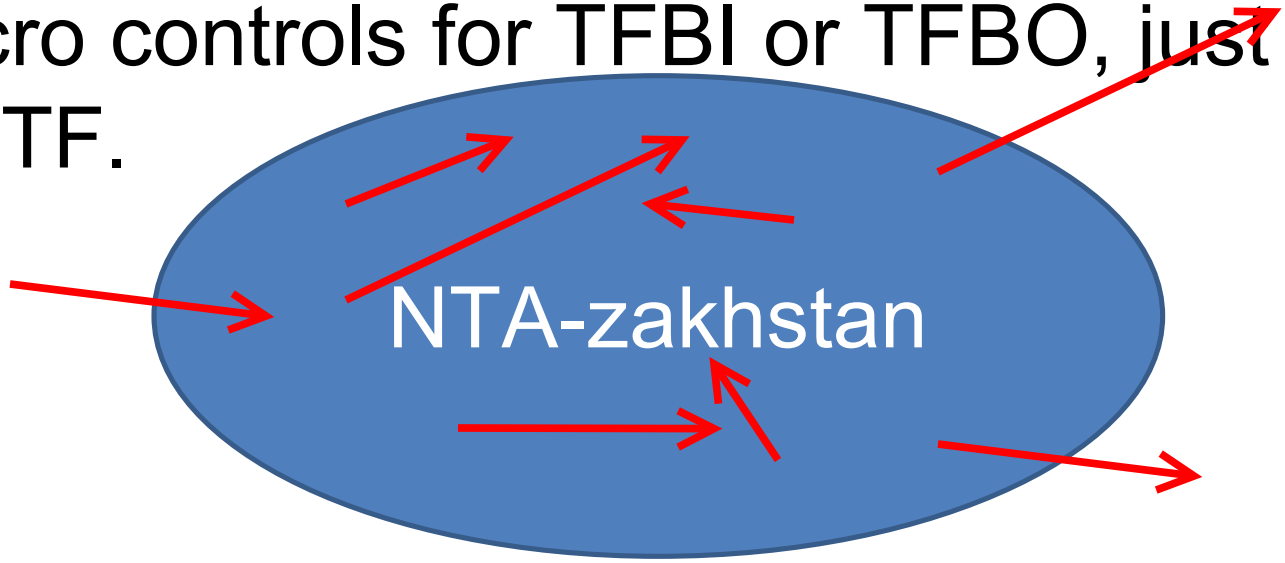

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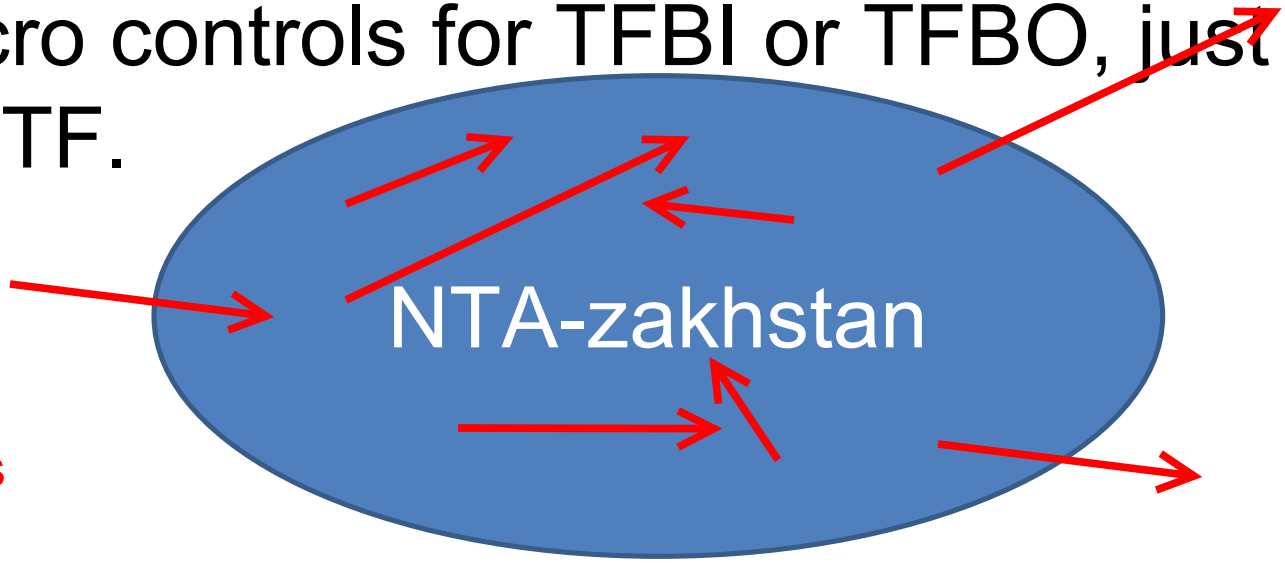
Observed TF total is just net length of arrows that cross NTA-zakhstan borders



# TFB Control Total

- So how to adjust inflows and outflows to a net total?
- Infinite number of mathematical solutions

  Example: Inflow = 2; Outflow=-4; Net = -1

  - Adjust inflow to 3 and outflow unadjusted
  - Adjust outflow to -2 and inflow unadjusted
  - Adjust inflow to 1 and outflow to -2
  - Adjust inflow to 999 and outflow to -1000
- What to do?
- Need some sort of anchor for the estimates

# TFB Control Total

- Look for outside sources of inflows and/or outflows to compare
- References suggesting whether your survey might have an under- or over-estimate on one side of the flow compared to the other
- Try several different methods and see which one seems the most reasonable.
- If you come up with enormous adjustment factors, back to the drawing board for better profile estimates

# TFBI/O Adjustment

- TF is same sign as $TFBI_{agg}$+ $TFBO_{agg}$? No reason to think one profile is better estimated than the other?
  - One adjustment factor for TFBI and TFBO (this is the basic NTA adjustment factor, applied to TFB):

$$TFB_{adj} = \frac{TF}{TFBO_{agg} + TFBI_{agg}}$$

$$TFBO(x)_{adjusted} = TFBO(x)_{unadjusted} \times TFB_{adj}$$

$$TFBI(x)_{adjusted} = TFBI(x)_{unadjusted} \times TFB_{adj}$$

# TFBI/O Adjustment

- TF different signs compared to $TFBI_{agg}$+ $TFBO_{agg}$? No reason to think one profile is better estimated than the other?
  - "Split the difference" adjustment factors:

$$TFBO_{adj} = 1 + \frac{TF - TFBO_{agg} - TFBI_{agg}}{2TFBO_{agg}}$$

$$TFBI_{adj} = 1 + \frac{TF - TFBO_{agg} - TFBI_{agg}}{2TFBI_{agg}}$$

  - Apply adjustment factors by multiplying (see previous slide)

# TFBI/O Adjustment

- One profile seems reasonable but other needs adjustment?
  - Adjust only inflow or outflow:

$$TFBO_{only\_adj} = \frac{TF - TFBI_{agg}}{TFBO_{agg}}$$

***OR***

$$TFBI_{only\_adj} = \frac{TF - TFBO_{agg}}{TFBI_{agg}}$$

  - Multiply only one profile, leave other as observed

# Last Words on TFBI/O Adjustment

- If all options for adjustment factors are huge (>2), back to the drawing board for better profile estimates
- Look to literature for external consistency checks
- Is size of resulting aggregate inflows and outflows reasonable relative to GDP? To avg YL age 30-49? To TFW?

# Intrahousehold Transfers (TFW)

- Transfers for consumption of owned assets (CFR, CFD) come from the head who owns all assets
- Transfers for current consumption (CFE, CFH, CFX) come from anyone in the household who has surplus cash after paying for his own consumption and (cash) taxes
- The head covers any household cash shortfall or receives any household cash surplus

# Intrahousehold Transfers (TFW)

- Preliminaries
  - Start with microdata
  - Make sure each household has only one head
  - Make sure all variables are of the correct sign
- Ingredients:
  - Labor Income (YL)
  - Government cash transfers (TGSOAI+TGXCI)
  - Net interhousehold transfers (TFB)
  - Taxes (including indirect)
  - All CF variables (CFE, CFH, CFD, CFR, CFX)

# Intrahousehold Transfers (TFW)

- Ingredients must be control-total adjusted
  - Merge adjustment factors on to your microdata
- Necessary for everything to work out correctly in ABR spreadsheet
  - Example of 0 year olds
    - No ABR, no TFB, so their LCD must be covered by TF+TG
    - LCD and TG are control-total adjusted, so to make sure everything ties out, TFW ingredients must be control-total adjusted
    - NTA IS LIKE SUDOKU!  You can make an early mistake and not realize things are messed up until the last square.

# TFW for Owned Assets

- Piece of cake!
- Head makes a transfer to each non-head in the exact amount of non-head's CFR or CFD
- Head's inflow for owned asset consumption is zero

# TFW for Current Consumption

- Start with cash surplus/deficit

**X=yl+(tgsoai+tgxci)+tfb-tax_cash-(cfe+cfh+cfx)**

- Confusion about this tax_cash thing…
  - We want taxes that must be covered with CASH
    - Indirect taxes? Yes! Transfer surplus/deficit? No!
  - TGDO less Public ABR
  - If your “taxes paid” variable is just cash and indirect taxes, then no need to take out public ABR
  - My sloppiness about signs (+/-): the taxes paid reduce cash surplus/deficit
  - Yes, I will update the code on the wiki. (Sorry about that.)

Person- and HH-level Cash Surplus/Deficit :

```
gen sur=X*(X>0)
gen def=X*(X<=0)*(-1)
egen surhh=sum(sur),by(famid)
egen defhh=sum(def),by(famid)
```

Find HH Tax Rate and Current Consump Outflows:

```
gen ttax=min(1,defhh/surhh)
replace ttax=0 if surhh==0
gen shortfall=max(0,defhh-surhh)
gen tfwoc=0
replace tfwoc=(-1)*sur*(ttax)                    if hh==0
replace tfwoc=min(0,-(sur*ttax + shortfall - def))
                                                 if hh==1
```

Current Consumption Inflows by Sector:

```
gen tfwei=(cfe/(cfe+cfh+cfx))*def  if hh==0
gen tfwhi=(cfh/(cfe+cfh+cfx))*def  if hh==0
gen tfwxi=(cfx/(cfe+cfh+cfx))*def  if hh==0

replace tfwei=(cfe/(cfe+cfh+cfx))*max(def-
                shortfall,0) if hh==1
replace tfwhi=(cfh/(cfe+cfh+cfx))*max(def-
                shortfall,0) if hh==1
replace tfwxi=(cfx/(cfe+cfh+cfx))*max(def-
                shortfall,0) if hh==1

replace tfwei=0 if cfe+cfh+cfx==0
replace tfwhi=0 if cfe+cfh+cfx==0
replace tfwxi=0 if cfe+cfh+cfx==0
```

How you can make this code nicer using macros:

```
foreach vv in e h i {
   gen tfw`vv'i=(cf`vv'/(cfe+cfh+cfx))*def  if
  hh==0

   replace
  tfw`vv'i=(cf`vv'/(cfe+cfh+cfx))*max(def-
   shortfall,0) if hh==1

   replace tfw`vv'i=0 if cfe+cfh+cfx==0
  }
```

Look up “macros” in the Stata help files for more details, or ask me.

Outflows are in same shares as inflows:

```
egen tfweihh=sum(tfwei),by(famid)
egen tfwhihh=sum(tfwhi),by(famid)
egen tfwxihh=sum(tfwxi),by(famid)

gen tfweo=(tfweihh/(tfweihh+tfwhihh+tfwxihh))*tfwoc
gen tfwho=(tfwhihh/(tfweihh+tfwhihh+tfwxihh))*tfwoc
gen tfwxo=(tfwxihh/(tfweihh+tfwhihh+tfwxihh))*tfwoc

replace tfweo=0 if tfweihh+tfwhihh+tfwxihh==0
replace tfwho=0 if tfweihh+tfwhihh+tfwxihh==0
replace tfwxo=0 if tfweihh+tfwhihh+tfwxihh==0
```

Non-heads transfer any remaining surplus cash to household head:

```
gen tfwso=-sur-tfwoc   if hh==0
replace tfwso=0        if hh==1

egen tfwsi=sum(tfwso), by(famid)

replace tfwsi=(-1)*tfwsi      if hh==1
replace tfwsi=0               if hh==0
```

# TFW Checks

- Before calculating age-average profile, all inflows should be balanced exactly by outflows (i.e. net to zero)
  - Within the household and population
  - Within each type of consumption
- Due to sampling variation and/or survey weights, after calculating age-average profile, this balance will be lost
- Smoothing also creates net +/- TFW.
- Need another adjustment

# TFW Adjustment

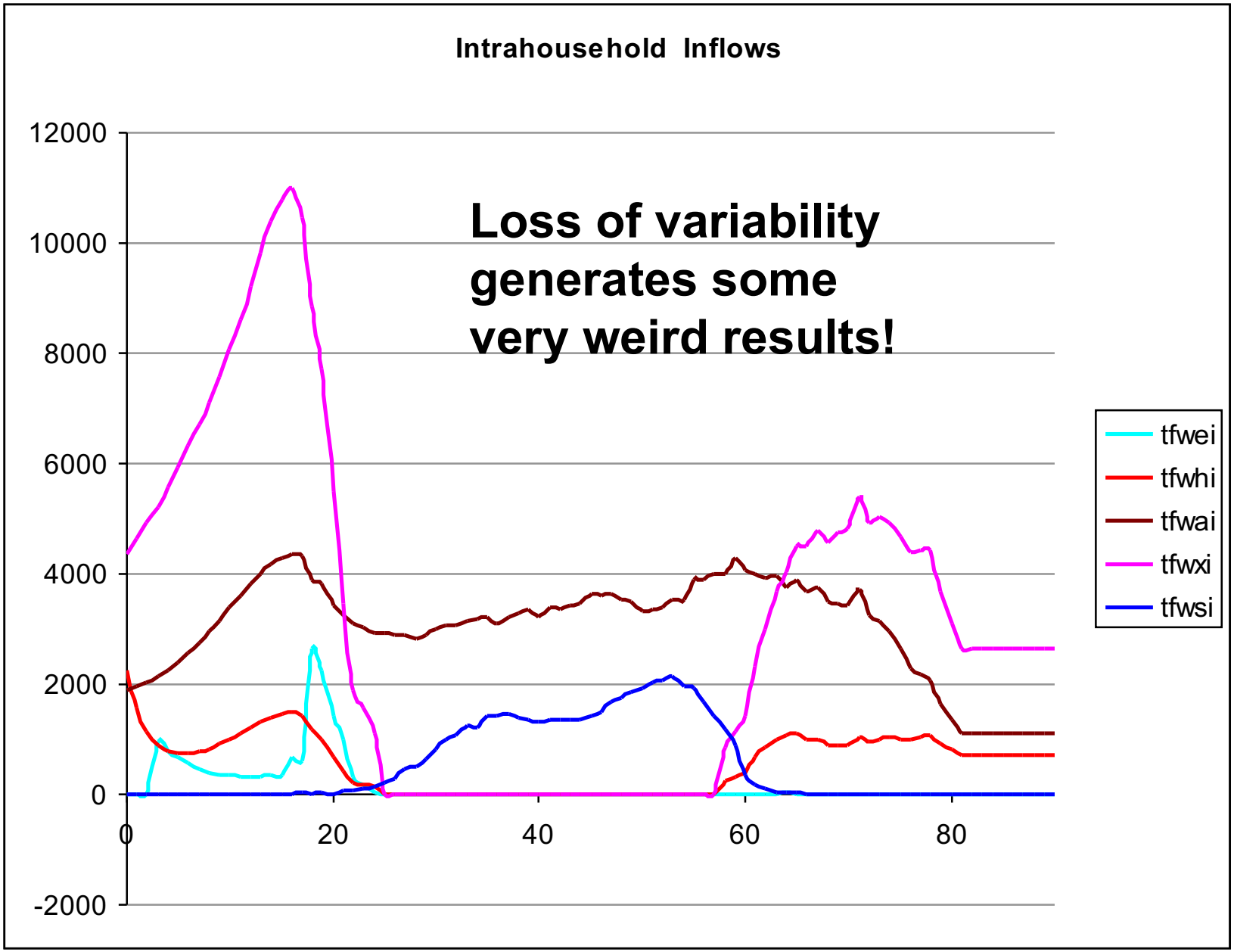
- Adjust only outflows: $$O_{adj} = \frac{-I_{agg}}{O_{agg}}$$
- Should be small!
- New idea to restrict adjustment to working ages; avoids residual saving for young kids

$$O_{adj}^{adult} = \frac{O_{agg}^{kid} + I_{agg}^{kid} + 2I_{agg}^{adult}}{O_{agg}^{adult} - I_{agg}^{adult}} \qquad I_{adj}^{adult} = 2 - O_{adj}^{adult}$$

- Should still be small!

# TFW Multiple Survey Problem

- What if you don't have one survey with all of the TFW ingredients?
- I thought I had an answer to this, but now I think it is a pretty lousy answer
- Gretchen's First Try
  - Use microdata for household structures, merge ingredient profiles, run algorithm
  - Look what happens…

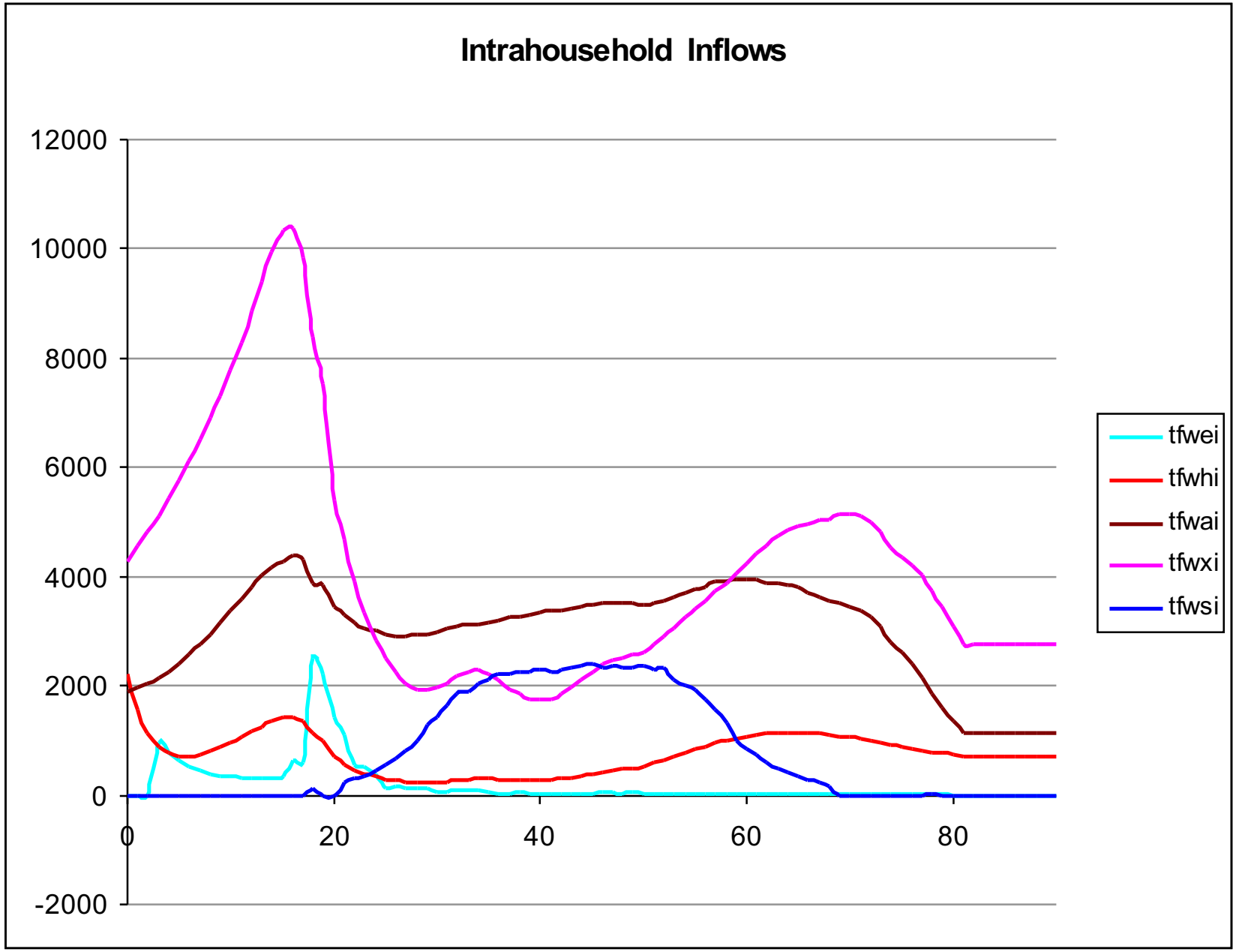

Intrahousehold Inflows
Loss of variability generates some very weird results!
12000
10000
8000
6000
4000
2000
0
-2000
0
20
40
60
80
tfwei
tfwhi
tfwai
tfwxi
tfwsi

# Getting Variability with Two Survey Problem

- Current US “Solution”
  - Use survey with good consumption data but bad income data
  - Merge good income profile, and adjust bad income data to match good income data age-specific means (control total adjusted)

$$YL\_for\_tfw(x,i) = bad\_YL(x,i) - [\, good\_YL(x) - bad\_YL(x) \,]$$

  - So, everything is microdata but variability and “ingredients” are maintained


Intrahousehold Inflows
12000
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4000
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40
60
80
tfwei
tfwhi
tfwai
tfwxi
tfwsi

# How to Apply in Other Contexts?

- Want to find a way to add variability to any age-specific profile you use
- Random variability will probably not do the job because of relationships among income, household structure, consumption, taxes, etc.
- How to handle this is a BIG OPEN QUESTION.
- Actually, it is quite a few BIG OPEN QUESTIONS

# Bequests (TFBB)

- Ingredients:
  - Net worth profile (financial wealth)
  - Mortality
  - Headship
  - Other depending on inheritance practices
- NTA methodology not finalized yet
  - Outflows are mortality-weighted net worth of heads (averaged over heads and non-heads)
  - Assumes no relationship between wealth and mortality (VERY BAD ASSUMPTION)
  - Inflows depend on context?

# Current US Version of TFBBI

- For proportion married, inflow to spouse
  - For now assume to be 3 years younger
  - Eventually estimate exact spouse age estimate or distribution
- For proportion formerly married, inflow to children
  - For now assume to be 30 years younger
  - Eventually estimate exact child age distribution
- For proportion never married, inflow to same age sibling/non-relative

THIS ASSUMES NO RELATIONSHIP BETWEEN MORTALITY AND MARITAL STATUS…ANOTHER VERY BAD ASSUMPTION...

# Most Common TF Issues

- TFBI/O either very big or very small
- Non-heads with TFBO
  - Smoothing?
  - Different assumptions?
- TFWS not included in TFW
- No detail below TFW
- TFW not netting to zero
- TFB netting to zero
  - Confusion between TFW, TFW and TF control total?