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IO / NIPA Notes

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Alfie Graham
673-4396

I-O/NIRA Notes

NA-30-06

Here, we cannot simply write

$GVA^* = GVA + m_T + m_F$,

because the interest transferred by P+F to households ≠ to int. transferred to Finance by HH

So question arises: is the excess of int. paid by HH to F over int. received by HH from P+F, simply a disguised form of surplus value transfer?

— If so, then $GVA^* = GVA + m_T + m_F$

— If not, then $\Pi > S$ - Costs of Circ = $S - (W + m_{T+F})$

(i.e. $GVA^* < GVA + m_T + m_F$)

Revised NIPA/SV Estimation: Talk 3/29/89

(0.) When I first did this, we built-up Y^* because we had worked out only revenue side (Mag)

(1.) now, we can show double-account transformation, so derive it by subtraction from Y

~~Existing~~ Prod + Trade Sectors: $Y^* = (W_P + \pi_P) + (W_T + \pi_T) + (m_t + d_t)$

$$Y^* = Y_P + Y_P + (m_t + d_t)$$

(i) Note that like I-O, NIPA, we do not count gross output of prod. sector twice; once as output of prod sector & once as ~~cost~~ price of goods resold. Like them, we count only the trade sector sales portion above the price of goods to be resold — otherwise double counting

(ii) But unlike NIPA/I-O, we count ~~only~~ all of the GTM, not just VA, since all of this represents surplus value absorbed in trading activity

2. Existing NIPA accounts: $Y = Y_P + Y_T + Y_{FIRE} + Y_G + Y_{HI}$

(i) Y_P ✓ (ii) $Y_T \rightarrow Y_T + m_t + d_t$

(iii) Y_G — double counts W_P (see notes)

(iv) Y_{FIRE} — decompose into elements & treat these separately according to whether

a) They are like a trading activity (BR)

b) They are like transfers of s.v. or transfers of revenue

c) They are fictitious

3. ~~Summary~~ Y_{HI} — wages of non-profit institution workers (transfers of revenue)

wages of domestic workers (Non-commodity services, commodity services, cap. commod.)

Revised MPA/S&V Estimates: Talk 3/29/84

4. Final results: estimate γ^* simply by

$\gamma^* =$

[N, S, V+S]

Correct Procedure vs. Procedure in NIPA/S.U. paper

1

2/9/84

I Correct Measure

1. $Y^* = Y_P + TR^*_T + [TR^*_{BR} + TR_{GRFB}]_{P+T}$? shouldn't this be of prod. & trade sectors only?

*(if P+T sector pays interest F_B and thus $F_B = TR_{FB}$ is then partially passed on as GR or F paid by this sector, it is counted twice. If used for BR_{FB}?

where TR^*_T = GTM of Trade sector $\equiv Y_T + m_T + d_T$

(excludes costs of goods resold)

~~$TR_{(GRF)_B}$ = Total Revenue of Sector Receiving Ground-Rent and Interest from Business~~

2. $(TR^*_{BR}) \equiv TR_{BR_{(P+T)?}} - A_{BR_{(P+T)?}} = (TR_{BR})_{B_{P+T}} + (TR_{BR})_{C_T} - A_{BR}$

(P+T)? = Adjusted total revenue of business & consumer building rentals paid by productive and Trade sectors

$[TR_{(GRF)_B}]_{(P+T)?}$ = Total Rental of Business GR and Finance sector

= Total Ground Rent and Finance Charges paid by Business

$= (GR)_B + F_B$

II Our Previous Measure

(in "Marxian Categories & Nat'l Income Account" Dec 1978)

$Y^{*\prime} = Y_P + TR^*_T + [R_B + F_B]_{P+T}$

R_B = Net business Rent paid $= (TR)_{BR_B} + (GR)_B$

F_B = Net " " "

2/9/84

III Comparing Y^* = correct measure
$Y^{*\prime}$ = our previous measure

(I) $$Y^* = Y_p + TR^*_T + \left[(TR_{BRB} - A_{BRB}) + (TR_{BRC} - A_{BRC})\right] + GR_B + F_B$$

(II) Alternately, $$Y^{*\prime} = Y_p + TR^*_T + \left[(TR_{BRB} + GR_B) + F_B\right]$$

$$\therefore \boxed{Y^* = Y^{*\prime} + \left[(TR_{BRC} - A_{BRC}) - (A_{BR})_B\right]}$$

$$\therefore \boxed{Y^{*\prime} = Y^* + (A_{BR_C} - TR_{BRC}) + A_{BR_B}}$$

IV Note that we cannot estimate Y^* directly without estimating TR^*_{BR} and ~~Specially~~ TR_{GRFB} — and this would in any case require estimating R_B and F_B and hence in effect calculating $Y^{*\prime}$ first and then adjusting.

Calculation of Variable Capital ① 8/2/84

(See 10/19/84, "New Procedure")

1. To begin with, we look at Employee Compensation (EC) which is EC = (Wages + All Salaries + Employer Contrib. to Social Security)

(I) This EC measures labor cost (gross labor income) of all employees. As such

(i) it includes corporate officers, at least a portion of which should be excluded (altogether on grounds that their labor is all at level of capitalist)

(ii) it excludes all, in case of self-employed persons (PROPRIETORS / PARTNERS). Here, at least a portion should be included, insofar as it corresponds to the variable capital equivalent of their productive activities (the productive portion of the total personal labor of self-employed persons who own profit-making enterprises)

(II) Conceptually, corporate officers are managers of corporations, and proprietors/partners are owner/managers of unincorporated capitalist enterprises of capitalist enterprises. So at this abstract level, we have to treat them as conceptually equivalent since the difference between corporate capital & unincorporated capital is second order

2. First, let us get the proper conceptual total

$$EC^{+} = EC + WEQ = (\text{Wages} + \text{Employer Contrib.} + \text{other labor income}) + COS + WEQ$$

Gross Wages = W'

$$EC^{+} = W' + WEQ + COS$$

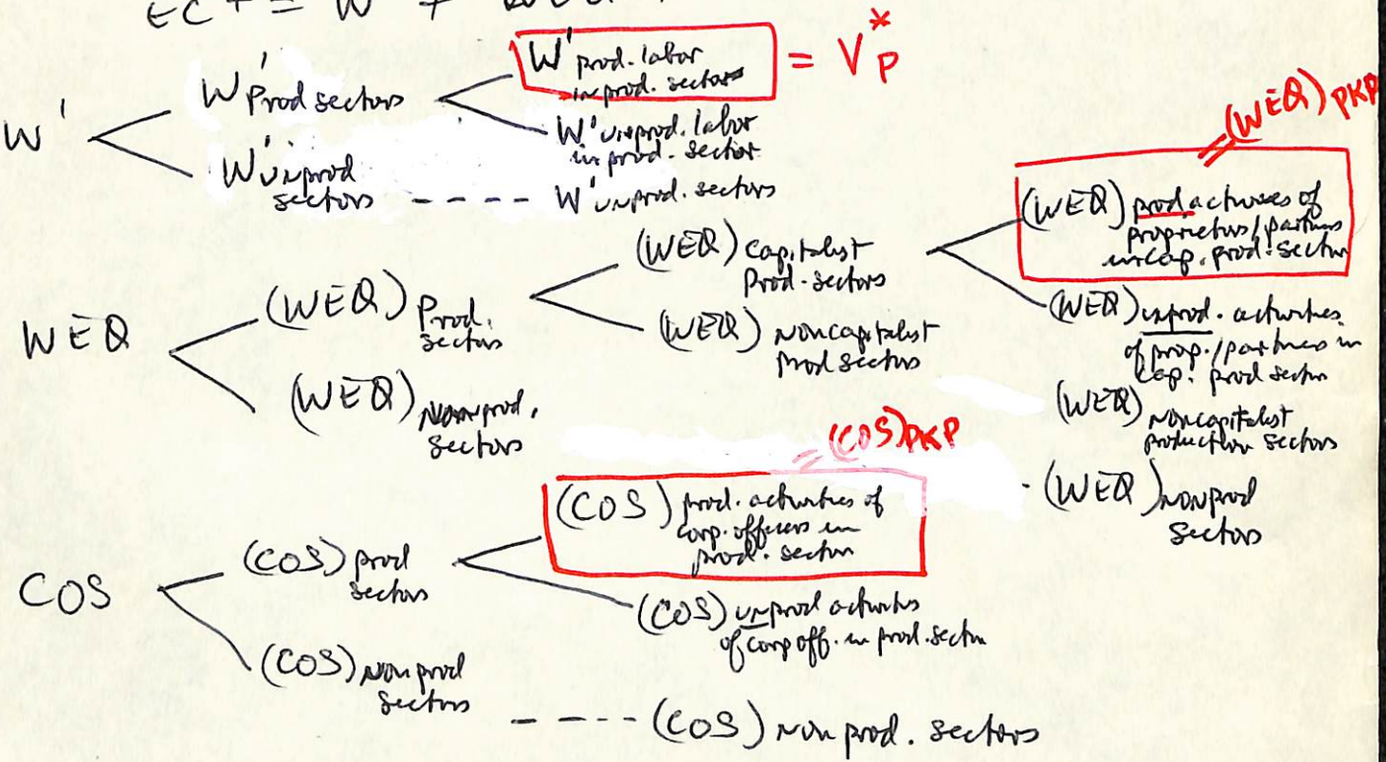
Calculation of Variable Capital

8/2/84

2...

To proceed from EC^+, we need to deal with the productive/unproductive ~~split of~~ breakdown of each of the three components of EC^+

$$EC^+ = W' + WEQ + COS$$



3. Conceptually, there are two different measures of variable capital & they have to do with whether or not the wage-equivalent of the productive activities both corporate and noncorporate capitalist enterprises is counted as variable capital.

(1) From one point of view, there can be productive component to the labor of capitalist managers. C.F. (Capital I, Penguin, p. 1048)

~~From this~~

Calculation of Variable Capital

8/2/84

(ii) From another point of view, there is a question whether this labor is actually first exchanged against variable capital, or whether it is merely an apparent similarity

(iii) If it is treated as variable capital, we have

a) $(WEQ)_{PKP} + (COS)_{PKP} = V^*_{PKP}$ = variable capital of prod.-activities of Kapitalist managers of production enterprises

and $V^* \equiv V^*_p + V^*_{PKP}$

b) If not, $V^* = V^*_p$

4. Empirically, none of this may matter because

(i) $(COS)_{PKP}$ may be taken to be effectively very small relative to W_p in (prod.) corp sector

(ii) $(WEQ)_{PKP}$ may be larger as a portion of WEQ, but given capitalist/non cap. division, & then prod/unprod within capitalist non-corp. sector, this too is small

→ E-G. ...

(iii) So, empirically we can assume $V^* \cong V^*_p = (W'_p)_p$

7/30/85

1972 & Earlier Tables: Differences

I Secondary Products

1. 1972 redefines all secondary products

   (i) Output of secondary product is reallocated to industry which primarily produces such products

   (ii) A relevant mixture of inputs is also reallocated

   (1972 I-O Def. & Conventions, p. 49)

2. Earlier Tables used mixture of redefinition and transfer

   Transfer:

   (i) Secondary product was treated as if it was sold to primary producer, and then added to the output of that (primary) industry.

1972 & Earlier Tables: Differences 7/30/85

(11) To trace this, let us first imagine that there are two ~~industries~~ products (Steel & iron) which then appear as two establishments A = Steel + ½ iron

B = ½ iron

By Commodity

	Steel	Iron	C	I	GO
Steel	50	100	350	500	1000 ✓
Iron	100	300	300	300	1000 ✓
W	250	300			
IT	600	300			
GO	1000	1000			

To combine these by establishments table must be reallocated and rebalanced

a) ½ of iron column must be combined with steel to get Establishment A input structure

b) Then, ½ of steel Sales must be added Est. A row to get Establishment A Sales

7/30/80

By Establishment A = Steel + ½ Iron
B = ½ Iron

	A	B	C	I	GO	TR + I
A	225	125	500	650	1500	
B	125	75	250	150	500	
W	400	150				
T	750	150				
GO	1500	500				
TR						

(iii) Pre-1972 I-O tables would reallocate by method of transfer

a) Iron in Establishment A is treated as if sold to Establishment B
— It therefore is still counted in Establishment A output

b) Iron purchased by B is added to B's gross output (P. 49)

Aggregation

	(A+B)
A+B	(100+550−500)+250+50
	= 550 = 225+125+125+75 ✓ 650 800 2000 ✓
	$A_A + A_B + B_A + B_B - TR$
W	550
T	400
	2000 ✓
	= GO − TR

7/30/85

Iron in EST A = $500 by construction

∴ – Add $500 to A's sales to B
– Add $500 to B's output ⇒ allocate it along B's row
– Rebalance table, since now it looks like this:

	A	B	C	I	GO
A	225	$\boxed{625}$ (125+500)	500	650	$\boxed{2000}$ (1500+500)
B	125	75	150	150	500
W	400	150			
π	750	150			
GO	1500	$\boxed{1000}$ (500+500)			

uses allocations proportions of B here

Re Balance by moving $500 worth of iron distribution (iron row) from A to B. Then list amounts transferred in transfer row & column (for use in aggregation)

	A	B	C	I	GO	πR
A	100 (225-125)	550 (625-75)	350	500	1500 (2000-500)	$\boxed{500}$
B	250 (125+125)	150 (75+75)	300	350	1000 (500+500)	–
W	400	150				
π	750	150				
GO	1500	1000				
$\boxed{\pi R}$	1500	1500				

2° (IV) End Result is a table which has inflated intermediate inputs + GO relative to (true) commodity table
— Note that GVA, GFD are not altered.

(TRUE) Commodity Table

	Steel	Iron	C	I	GO
Steel	50	100	350	500	1000
Iron	100	300	300	300	1000
W	250	300			
T	600	300			
GO	1000	1000			

Pre-1972 I-O Table

	Steel	Iron	C	I	GO	TR
Steel	100	550	350	500	1500	500 = TR1
Iron	250	150	300	300	1000	—
W	400	150				
T	750	150				
GO	1500	1000				
TR	—	500 = TR2				

	Steel	Iron	Total
Deviations of GO	+500	—	+500. → Total inputs are inflated
" " GVA	+300	-300	—
" " GFD	—	—	— } But total VA, FD is not changed

7/30/85

Aggregation of these sectors cancels out this distortion, since ~~transfer~~ transfer column & rows are used to adjust aggregates

EG, if we aggregate Pre-1972 IO Table,

	Prod	C	I	GO
Prod	550 ✓ = 100+350-TR$_1$ +250+150	650	800	2000 ✓
W_p	550	—	—	
π_p	900	—	—	
GO	2000 ✓			

T_1

7/30/85

3. Now consider an example of P + T

(I) True Table

	Prod	Trade	C	I	GO
Prod	50	100	350	500	1000
Trade	100	300	300	300	1000
W	250	300	GFD* = 1850		
TT	600	300			
GO	1000	1000	GVA* = 1850		

(II) Establishment Table : $A = \text{Prod} + \frac{1}{2}\text{Trade}$
$B = \frac{1}{2}\text{Trade}$

	A	B	C	I	GO
A	225	125	500	650	1500
B	125	75	150	150	500
W	400	150	$1650 < GFV^* = 1850$		
TT	700	100			
GO	1500	500	$1650 < GVA^* = 1850$		

Note that total GVA & GFD are same as in true table
But now total $GVA^* \neq$ areas in solid rectangles because mp now includes portion of m_T.

(iii) Now Pre-1972 style I=O with transfers (same as in 2(iii)]

	Prod	Trade	C	I	GO	TR
Prod	100	550	350	500	1500	500 (TR₁)
Trade	250	150	300	300	1000	
W	400	150				
Π	750	150				
GO	1500	1000				
TR	—	500 (TR₂)				

$2150 > GFD^* = 1850$

$2150 > GVA^* = 1850$

$GVA^{*\prime} = GVA^* + \frac{1}{2} Y_T = 1850 + \frac{1}{2}(600) = 2150$ ✓ $= 300$

and $x = \frac{TR_2}{GO_T} = \frac{1}{2}$, so $\frac{x}{1-x} = 1 \Rightarrow Adj = GVA_T^{1\$} = 300$ ✓

Now, once again $GVA = GFD = 1450$

but ~~shaded~~ outlined areas do not add up to GVA^*, GFU^*

Moreover, the difference is not simply due to "Transfers" Col/Row, since these adjustments ~~itself~~ themself only were adjustments to the recorded data in Establishment form [3(ii)] and this form itself is the thing which needs to be adjusted.

7/30/85

Upshot of this is that the only proper way to deal with pre-1972 tables is to recalculate them in 1972-form — which means that

4. Summary

(i) As far as production sectors are concerned, proper aggregation (i.e. taking out transfers, as on p. 6) will cancel out transfers and also eliminate errors in establishment form vis-a-vis (true) commodity form

Note that in any case, GVA = GFD = Y is not affected

(ii) As far as production sectors versus trade sectors, the problem is one of going back & redefining, rather than transferring, the trade "services" within production ~~sect~~ establishments

BUT NOTE: Transfers into Trade in 1967 = 5,717, & GTM = 163,365 ⇒ $TR/GTM = .035$ (= 3%). Since $\left(\frac{GTM}{GVA^x}\right)_{1972} = .213$ this indicates small errors

7/30/85

1. Thus if $\left(\frac{GTM}{GVA^*}\right)_{1967} \simeq \left(\frac{GTM}{GVA^*}\right)_{1972} = .213$,

Suppose GTM_{1967} = as listed in I-O

$$GTM\left(1 \pm \frac{\Delta R}{GTM}\right) = GTM'_{1967} = GTM(1.035)$$

Then $\left(\frac{GTM'}{GVA^*}\right)_{1967} = \left(\frac{GTM}{GVA^*}\right)_{1967}(\pm 1.035) \simeq (.213)(1.035)$

$$\therefore \left(\frac{\Delta GTM}{GVA^*}\right)_{1967} = (.213)(\pm .035) = \pm .007$$

Thus is a negligible difference in practice

8/7/85

I VALUE SIDE (INCLUDING ADJUSTMENTS for pre-1972 years treatments of Secondary Products)

1. $$\boxed{GV^* = GV_p^* + GV_{TT}^*}$$

where GV_p^* = Gross Value Realized in Production Sector

$$= \underbrace{(m_p - ADJ_m)}_{m_p^*} + \underbrace{(Y_p + SC_p - ADJ_Y)}_{Y_p^*}$$

GV_{TT}^* = Gross Value Realized in Total Trade (Wholesale/Retail/BR) Sector

$$= \underbrace{\left[m_T + (m_R - m_{IMPR}) - ADJ_Y\right]}_{m_{TT}^*} + \underbrace{\left[(Y_T + SC_T) + (Y_R + SC_R - Y_{IMPR}) + ADJ_Y\right]}_{Y_{TT}^*}$$

2. $$\boxed{GVA^*} \equiv GV^* - m_p^* = \boxed{Y_p^* + (m_{TT}^* + Y_{TT}^*)}$$

Note that we could calculate totals even more easily than the above, since terms like $m_p + SC_p$, $m_T + SC_T$, $m_R + SC_R$ are simply the recorded totals of P, T, R "intermediate inputs". Similarly, ADJ_m and ADJ_Y in GV_p^* could be estimated as the total ADJ_{60}, while ADJ_Y appears as both a negative and positive number in GV_{TT}^*.

8/7/85

The principal reason for not simplifying the calculation process too much is that this way we can see the various base components of GU*, GVA* — which is important for analysis of the overall patterns

II USE SIDE (Including Secondary Product Adjustments)

1. $$\boxed{GU^* = (U_P + U_{TT} + U_F) + C' + I' + G'}$$

where $U_P + U_{TT} + U_F$ = total intermediate use (output used up as intermediate inputs) in production, total trade and finance

$= (m_P - ADJ_M) + (m_T - ADJ_Y) + (m_R - m_{IMPR}) + m_F$

m_P^* m_T^* m_{BR}

C' = personal consumption of total product

$= (C - Y_{EMPR} - SC_H)$

I' = investment and unintended inventory change

$= (I - A_{BR})$

G' = government consumption of total product

$= (G - Y_G - SC_G)$

$(X-M)'$ = net exports $= (X-M) - SC_{X-M}$

2. $$\boxed{GFU^*} = GU^* - m_P^* = \boxed{(m_T^* + m_{BR} + m_F) + C' + I' + G' + (X-M)'}$$

where $m_P^* = m_P - ADJ_M$ = true intermediate output in prod. sector (exclusive of finance charges)

$m_T^* = m_T - ADJ_Y$

8/7/85

III EQUALITY OF TWO SIDES

(1) $GVA^* \equiv Y_P^* + (m_{TT}^* + Y_{TT}^*)$ [illegible]

$= (Y_P + SC_P - ADJ_Y) + [(m_T - ADJ_Y) + (m_R - m_{IMPR})] + [(Y_T + SC_T + ADJ_Y) + (Y_R + SC_R - Y_{IMPR} - ABR)]$

Y_P^* $\qquad$ m_{TT}^* $\qquad$ Y_{TT}^*

[illegible]

$= (Y_P + Y_T + Y_R - Y_{IMPR} - ABR) + (SC_P + SC_T + SC_R) + [(m_T - ADJ_Y) + (m_R - m_{IMPR})]$

[illegible] But $Y \equiv Y_P + Y_T + Y_R + Y_G + Y_F \Rightarrow Y_P + Y_T + Y_R = Y - Y_G - Y_F$

$\therefore$ (1)' $GVA^* = (Y - Y_G - Y_F - Y_{IMPR} - A_{BR} - Y_F) + (SC_P + SC_T + SC_R) + [(m_T - ADJ_Y) + (m_R - m_{IMPR})]$

---

(2) $GFU^* \equiv$ [illegible] $(U_{TT} + U_F) + C' + I' + G' + (X - M)'$

$= [(m_T - ADJ_Y) + (m_R - m_{IMPR}) + m_F] + (C - Y_{IMPR} - SC_H) + (I - A_{BR})$
$+ (G - Y_G - SC_G) + [(X - M) - SC_{X-M}]$

Note that $FD = Y = C + I + G + X - M$.

(2)' $GFU^* = [(C + I + G + X - M) - Y_G - Y_{IMPR} - A_{BR} - (SC_H + SC_G + SC_{X-M})] + m_F + [(m_T - ADJ_Y) + (m_R - m_{IMPR})]$

Now $GVA^* \stackrel{?}{=} GFU^*$ if the noncommon terms are equal. I.E.

if $-Y_F + (SC_P + SC_T + SC_R) = -(SC_H + SC_G + SC_{X-M}) + m_F$

$m_F + Y_F \stackrel{?}{=} SC_P + SC_T + SC_R + SC_H + SC_G + SC_{X-M}$ $\Rightarrow$ But this is simply equality of COL. + ROW SUMS OF FINANCE SECTOR

Note that treatment of rental sector and finance sector must be reworked

(1) All Rents paid by business are listed as intermediate costs But all rents received by Non-rental bus. are added to TR of R&R sector

(2) On other hand, only IMPUTED net interest paid is listed in IO/NIPA, & this is in VA, NOT costs.

Current Transformation of I-O/NIPA Accounts

8/5/84

1. The first step is to distinguish productive sectors from unprod. ones

(i) Productive Sectors —
- Agriculture
- Mining
- Construction
- Manuf.
- (Productive) Transp and Public Utilities
- Productive Services

(This includes productive govt enterprises, since NIPA lists them under appropriate use-value categories)

(ii) Unproductive Sectors —
- Trade
- FIRE
- Unprod. Services [Including unprod. govt. enterprises]
- [General government]

2. Second step is REMOVAL OF FICTITIOUS ELEMENTS (see "Summary: Imputations in GNP", 8/5/84)

(i) Sectoral Side a) Fictitious Rental GNP is 60% of total rental GNP, in 1976. (Note that for I-O table adjustment, the intermediate goods & services component ~~is explicitly~~ of fictitious rents is explicitly listed in NIPA, Table 8.8, line 73). $Z_R \downarrow$ by 60%

check this against I-O conventions

b) Fictitious Finance GNP is 40% of total financial sector gross product in 1976. Here, no component of materials cost is affected since the fictitious element is allocated to GNP alone. $Z_F \downarrow$ by 40%

Note that fictitious interest received is part of net interest in V.A.

(ii) Final Use Side — Remove fictitious elements from
- $C \downarrow$ (-12%)
- $I \downarrow$ (-1%)
- $G \downarrow$ (-1%)

Since the ~~two sides~~ total adjustments to the two sides is the same, the I-O and NIPA double-balance tables will balance after adjustment

Prod / Unprod
– Fictitious
– Double Counted
± Reallocation
+ excluded elements (SPM)

8/5/84

3. Third Step is REMOVAL OF DOUBLE COUNTED ITEMS, from Marxian point of view

(i) GOVERMENT (NON PRODUCTION = GENERAL GOVT)

Because the "general govt." is treated as part of final use of product and also a "producer", we have double counting from our point of view

a) On Sectoral Product side: $Z_G = Y_G \equiv W_G$ is counted as the "govt. product" (GNP and NNP). This have to be removed

$\Delta GNP = (\Delta Z)_G = -W_G$

b) On Final Use Side: The cons. of govt. workers is already in Aggregate Cons. (C), but on top of this the wage cost of govt. employees is also included as part of the (cost) price of the total gross output of the government $= G = M_G + W_G$, where M_G = govt. purchase from business (all treated as current consumption). Thus W_G has to be reduced from final use of actual product, from G column (since C_{W_G} is truly a final use of Dept II's product).

$\Delta GNP = \Delta G = -W_G$

c) On Aggregate Income Side: the private sources of govt. expenditure = indirect taxes + direct taxes + govt. deficits are already listed here, and the compensation of govt. employees is then further counted under "Employee Compensation". But this is double counting, since the latter is merely a portion of the former recirculated (transferred) to workers via the state. So Employee Compensation must be reduced by $-W_G$

$\Delta GNP = \Delta EC = -W_G$

(ii) Ground Rent and Finance

a) GRF_B paid by business — GR_B = we give ground rent paid by bus same treatment as trade sector (so put it under re-allocations)

F_B — I-O treats this differently from rentals

b) GRF_C paid by consumers

(4) Ground Rent

a) GR_B paid by business = Gross Rents paid by business (since rental receipts of business are listed as receipts of rental sector)

a cost;

In I-O tables, all rent ($BR_B + GR_B$) paid by businesses as listed as an "intermediate input" of the non-rental Bus. sector. Of this, one portion is building rent (BR_B), and should be left where it is. The rest is ground-rent GR_B

Similarly, all rent received by non-rental business is listed as a Receipt of the "Rental sector"

① GR_B is most easily treated as leaving it where it is, above the VA line of non-rental business, and then counting the expanded value added of the GR_B sector as part of total American value added ["I-O Accounts", 31]. Note that ground-rent paid by the GR sector to itself must be eliminated, since this is a purely internal transfer ("I-O Accounts", p. 30). Column + Row reduced. This does not affect Y.

$$Y^* = Y_P + Y^*_T + Y^*_{GRB} = (Y_P + Y_T + Y_{GR_B}) + (d+m)_T + (d+m)_{GR_B}$$

The treatment of GR_B is identical to that of TRADE sector

② Alternately, GR_B can be separated out from R_B, and transferred (as net ground-rent paid) to value-added portion of each sector. This expands the value-added of non-rental business by $\sum_{j=1}^{N} GR_{B_j} = TR_{GR_B}$, so the corresponding column of GR_B sector must be

Transfer column

on FD side, to balance tables.

8/5/84

Current Transformations of I-O/NIPA

4. Fourth Step is REALLOCATIONS

(i) Unproductive activities within productive sectors must be reallocated to corresponding Trade, GRF, etc. sectors

a) Use $(W,v)_p$ as starting point. But use the reallocated Trade GRF, etc. sectors to estimate the components of unproductive wages, and the relations between $(W,v)_p$ and the intermediate costs, depr., profits, taxes, etc. which should be reallocated from prod. sectors to unprod. ones

b) This in effect assumes that unprod. activities within productive sectors most closely resemble the corresponding activities in the corresponding unproductive sectors. This point is important because there are great differences in intermediate costs in prod. & unprod sectors, for instance

(ii) Building Rental portion of FIRE must be reallocated to Trade sector

(iii) Ground Rent & Finance paid by Business must be treated as a direct transfer ("tax") → reallocation to? Trade (expanded) Transfers (GRF, etc.)

(iv) Unprod. Services must be treated < Reallocated < Trade (expanded) Transfers (GRF, etc.)
(Eliminated due to Double counting) — e.g.

→ This includes treatment of households & non-profit institution services (HI)

5. Final step is expansion of concept of National Product to include depreciation & materials of expanded Trade sector $[T + BR + (\text{Trade})_{\text{prod. sectors}}]$

(i) Amortization of Buildings must be excluded from $D_{BR} \rightarrow d_{BR} = D_{BR} - A_{BR}$

NIPA/SV: Outline

I. Introd – See "Notes ..." (10/1/84)

(i) Activities < Prod / Non-Prod.

(ii) Reallocations of < Unprod Activities within Prod Sectors (labor?) / Fictitious Activities & Rentals especially)

(iii) Treatment of Other Unprod Activities
General Govt
Unprod. Services

II. Explanation of Transformation Process
- Own Prod, Surplus Prod, Value, S.V., and price = direct price, can we successively circulate these totals in more complex ways + still recover correct aggregate?

- Transactions Table ≠ I-O table
Marxian GVA, GFD* = NIPA GVA, GFD*
(Realized V+S6)

I List of Activities

I-O Sources & Method

✓ 1. Production — Note that non prod activities within prod. sector are mostly accounting, etc. (Trade/Finance, etc. are reallocated already)

✓ 2. Trading

✓ Retail/Wholesale

~~Trading Within Prod. Sector~~ — mostly reallocated, since costs of sales are mostly treated as part of trade sector VA (Evans & Hoffenberg, 104) 113

✓ Building Rental

3. Transfers

— Ground Rent —

✓ Finance/Insurance —

✓ [Finance Within Prod. Sector] — revenues already implicitly reallocated, since ~~only~~ Net interest is listed, in VA. assume cost-price is small here? But? Then what is [LV]?

✓ [Ground Rent within Prod Sector] — revenues already reallocated, since GR receipts of bus. are reallocated along with all Rental Receipts of Bus, to R&R ~~(but GR paid [illegible])~~

4444

7448

4. Fictitious

(01)77

✓ Fictitious Rentals (= "Sales to Persons", by R&R Sector = in R&R Row of Cons. Also, in materials of RR; indirect Bus. taxes of R&R; mortgage interest increases net int. paid by R&R. See Concepts & Method NIPA, April 1976, 46

✓ Fictitious Interest (Imputed Int. Paid by Banks = Actual Net Int. Received (47), Imputed Service charges Received by Banks = " " " " FOR BUSINESSES (imputed service charges added to int. input of bus (48) imputed int. received subtracted from net int. paid by business)

(see p. 46, NIPA Concepts &

✓ Fictitious Insurance — p. 48

not from 1972 I secondary products are counted twice — Evans & Hoffenberg, p. 106, p. 113

5. Other Unprod Activities

Unprod Services — Other Bus. Services, etc

General Government

Unprod. Services within Productive Sectors —

Procedure: (1) Balance for Fictitious Imputations

(2) Separate into Prod/Trading/Transferring/Other

(3) Reallocate Unprod. Activities within Prod. Sector to —

(4)

Corrections

A. Shaikh 11/1/84

Notes on the De-construction of Input Output Tables

In what follows, it is important to note that the methodology of the 1972 table is quite different in several respects from that of earlier tables. Therefore the starting point will always be the new method. Also, the focus here will be on the implications of I-O conventions for the Marxian treatment of the same transactions.

I. Distinction by Activities

The basic Marxian framework requires us to distinguish the following activities (as opposed to sectors) in the I-O accounts.

1. PRODUCTION ACTIVITIES

Agriculture
Mining
Manufacturing
(Productive) Transportation
Public Utilities
Productive Services

Note that government enterprises would be included in the relevant activity category.

2. NONPRODUCTION ACTIVITIES

TRADING ACTIVITIES

Wholesale and Retail Trade
Building and Equipment Rentals

TRANSFER ACTIVITIES

Ground Rent
Finance and Insurance
~~Insurance~~

OTHER NONPRODUCTION ACTIVITIES

General Government
Unproductive Services
Other Business Services (Advertising, etc.)

3. FICTITIOUS ACTIVITIES

Fictitious Rentals (Owner Occupied Housing)
Fictitious Finance and Insurance (Imputed Interest and Services Charges)
~~Fictitious Insurance (Imputed Interest and Service Charges)~~

II. Operations on Actual I-O Tables

The most efficient way to operate on the actual table seems to be:

Remove Fictitious Activities and rebalance tables

Separate Sectors into Production, Trading, Transferring, and Other Nonproduction Sectors

Transform Sectors to Activities by reallocating nonproduction activities within production sectors, and production activities within nonproduction sectors, to the appropriate activities columns. (Much of this is already done in the I-O tables themselves, except for certain nonproduction activities in the production sectors).

Calculate the relevant Marxian measures from these transformed I-O tables.

With this procedure in mind, we will now detail each step.

1. REMOVING THE FICTITIOUS ACTIVITIES.

A. Fictitious Rentals

In NIPA/I-O methodology,

Albert J. Walderhaug "The Composition of Value Added in the 1963 I-O Study", SCB, April 197

JULIE — Are there NIPA tables consistent with I-O, as promised in SCB —

(Michael)

Note on GR

$TR_{GR_{P,T,BR}}$ → sector

GR paid by P+T+BR

∴ Explicitly treating $GR_{P,TBR}$ will not change GV^*, since it will remove TR_{GR} from TR_R and add the same amount to $GV^*_{P,T,BR}$.

But it will change GVA^*, S^*, because it is an addition to $GVA^*_{P,TBR}$ and not to (mp) —

Financial Flows & Measure of S.V. 5/1/85

1. One remaining question has to do with the treatment of net interest out of wages (& cap. income, etc.) rather than directly out of profits of productive sector

(i) Suppose $GVA^* = 600_{W_P} + 1000_S$

(ii) If $100 = NIP_P were paid out of S to finance sector, then re-circulation of this value causes nominal $TR, GVA to rise, because the $NIP_P = \$100$ is counted as part of GVA of productive sector, and is then again counted as total revenue of Finance sector. But this is merely double-counting. If we count once only, then we can count either, but not both.

$$GVA^* = 600_{W_P} + 1000_S = 600_{W_P} + [900_{\pi_P} + 100_{NIP_P}]$$
$$= 600_{W_P} + [900_{\pi_P} + 100_{TR_F}]$$
$$100_{TR_F} = 40_{m_F} + 30_{W_P} + 30_{\pi_F}$$

$$\therefore \quad 1000_S = 930_{\pi_F} + (40_{m_F} + 30_{W_F})$$

$$\Rightarrow \boxed{GVA^*} = \boxed{GVA_P} = W_P + \pi_P + NIP_P$$

$$\boxed{GVA^* = (GVA_P - NIP_P) + (m_F + W_F + \pi_F)}$$
$$= (W_P + \pi_P) + (m_F + W_F + \pi_F)$$

$$\boxed{S = (\pi_P + NIP_P) = (\pi_P) + (m_F + W_F + \pi_F)} = \pi + m_F + W_F$$

(iii) Now suppose that, instead, $100 is paid out of prod. worker wages as $(NIP)_{W_F}$

In this case also, the ~~original~~ $100 is

5/6

4/17/85

Summary: $\boxed{\text{Prod, Trade, \& Rental}}$

If we ~~ignore~~ Consumer ground-rent, we can say that Y_{GRC} & $m_{GR} \cong 0$; also, if we compensate for this by treating $A_{BR} \cong \text{Deprec}_{BR}$, then

$$GVA^* \cong Y_P + (Y_T + m_T) + (Y_R + m_R) - D_R - Y_{RF}$$

$$GVA^* \cong \left[Y_P + Y_T + (\overbrace{Y_R - Y_{RF} - D_R}^{Y'_R})\right] + m_T + m_R$$

This leaves in Y_{GRC} but takes out $(D_R - A_{BR})$

$$GFU^* \cong C + I + m_T + m_R - D_R - Y_{RF}$$

$$= \left[(C - Y_{RF}) + (I - D_R)\right] + m_T + m_R$$

take out ~~cost~~ ~~vector~~ rental row, because that's where they add this fictitious purchase

take out of every element, in a total amount $= D_R = \Sigma I_R$

But for now, just take out of rental row for convenience

Summary: $\boxed{P + T + Govt}$

GOVERNMENT

$$GVA^* = Y_P + (Y_T + m_T) + \cancel{m_G} = Y - Y_G + m_T$$

$$GFU^* = (C - W_G) + I + G + m_T = (C + I + G) - Y_G + m_T$$

$$= FD - Y_G + m_T$$

$$= C_{private} + I + G + m_T$$

$$= \{(C + I)_{private} + m_T\} + G$$

Rental Sector

4/17/8

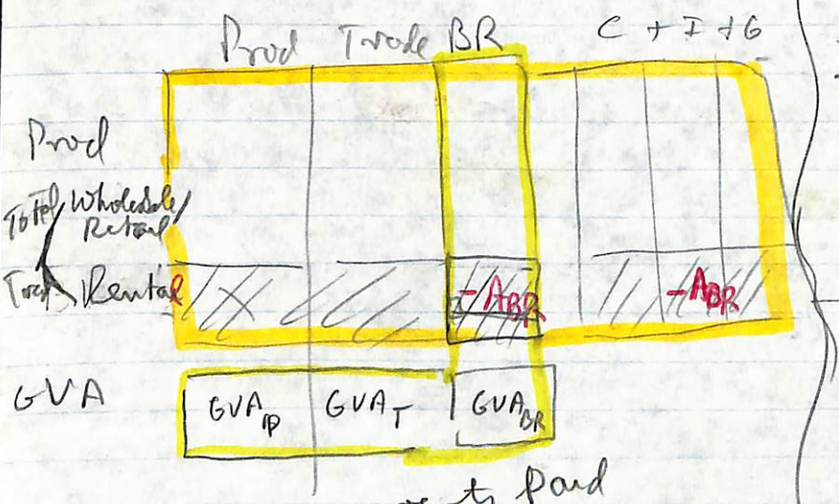
BR ⟺ Trade activity. Once you ~~move~~ recognize that Building purchased to be rented are ΔINV, must subtract A_{BR} from I_{BR} and also subtract A_{BR} from Y_{BR} (where it is hidden in Deprec. BR). Other than that, BR is same as trade...

→ Bus. expenditures on BR are part of their intermediate, & consumer & govt expenditures on BR are part of cons. & govt expen

→ Y_{BR} + m_{BR} ~~GTM~~ shows up explicitly as part of value added, since ~~and m_{BR} is added to~~ it represents GTM of BR. But $-A_{BR}$ must be taken out.

→ On FU side, W_{BR} + Π_{BR} already show up in $C_W + C_\Pi + I + \Delta INV$, so we need only add $+m_{BR}$ and subtract $-A_{BR}$ from the rent row of total invest. column

	Prod	Trade	BR	C + I + G
Prod				
Total Wholesale/Retail				
Trade Rental			$-A_{BR}$	$-A_{BR}$
GVA	GVA_P	GVA_T	GVA_{BR}	



Note that rents paid BR appear as part of m_P, m_T, & m_{BR}, and as part of C, I, G (just as trade margins do) ~~appear~~

C. ~~d~~

Owner Occupied Fictitious Rental Sector < $(m_{BR})_{Fict}$ = real home maintenance

$(Y_{BR})_{Fict}$ = Completely Fictitious

Take this out of Y_{BR}

Take it out of personal cons. expenditure

D. SUMMARY

	GVA*		GFU*
1. BR —	$+Y_{BR}$	→ includes Y_{BR} in GVA* which is already part of GVA	[—] (already part of C+I)
	$+m_{BR}$	→ added m_{BR} to GVA*, & GFU*, since this is not already included in GVA & GFD	$+m_{BR}$
	$-A_{BR}$		$-A_{BR}$
2. GR	Y_{GR_B} (BUSINESS) $+ m_{GR}$ (total)		$+m_{GR}$
GR_B	$GR_{P+T} = m_{GR_B} + Y_{GR_B}$	$Y_{GR_B} = (W+\pi)_{GR_B}$ →	— (already counted in C+I)
		$m(GR_B)$ →	m_{GR_B}
GR_C	— (Already counted in $W+\pi_{P+T}$)	$(W+\pi)_{GR_C}$ →	— already counted in C+I
		→	m_{GR_C}
3. Fictitious	$-(Y_R)_F$		$-C_{R_F} = -Y_{R_F}$
	~~$+m_{R_F}$~~		~~$+C_{Home\ Maintenance}$~~ ~~$+m_{R_F}$~~

(This leaves real home maintenance expenditures in C, though in wrong column. No change in GVA is needed either, since only Y_{R_F} entered GVA in first place)

	GVA*	GFD*
⟹ Totals	$(Y_{BR}+Y_{GR_B}) + m_{BR} + m_{GR_B} - A_{BR} - Y_{R_F}$ ($\approx D_{BR}$) $= (Y_R - Y_{R_F} - Y_{GR_C}) + (m_R - m_{GR_C}) - A_{BR}$	$m_{BR} + m_{GR_B} - A_{BR} - Y_{R_F}$ $= (m_R - m_{GR_C}) - A_{BR} - Y_{R_F}$

Rental Sector

1/2

4/~~8~~7/85

① Not all R+R is rental (~10% = sales)
For Rentals, two parts < Ground Rent ↔ Transfer like Finance + Tax
Building Rent ↔ Secret here is that this sector is really a trading sector

② ~~Building~~ Rentals

Do all BR first

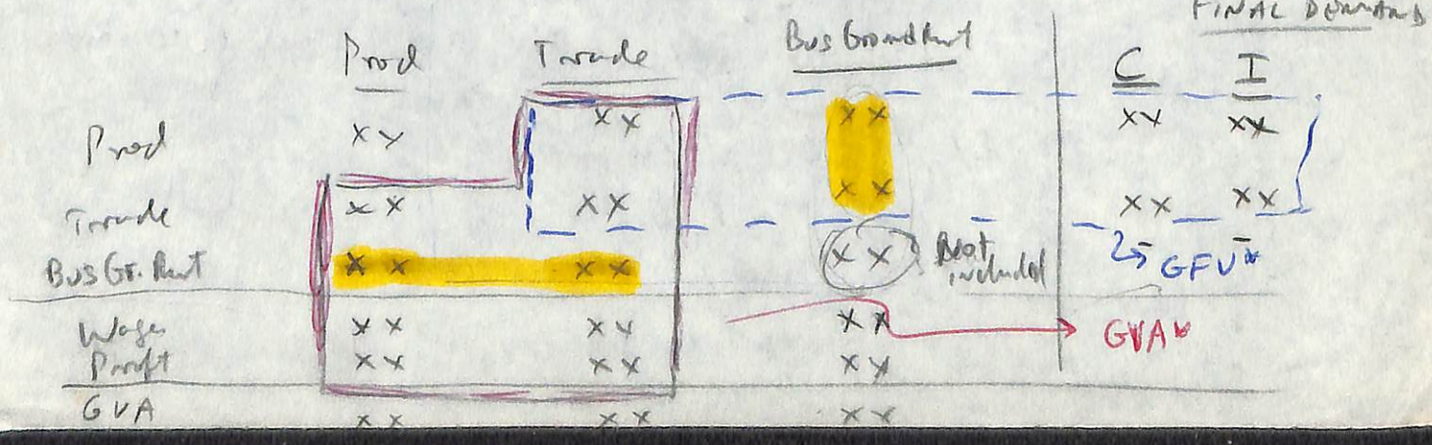
A. Ground-Rent

This is formally identical to interest + finance charges, as far as Marxian accounts go.

In NIPA accounts, it is listed directly as part of ~~"purch~~ GR_B row of prod. + trade sectors ("purchases of land services" from GR_B) and this same sum shows up as TR ~~GR~~ of GR_B sector, split into $m_{GR_B} + VA_{GR_B}$. This is exactly ~~how the~~ the same as the final treatment of business finance ~~sector is~~ payment, ~~is~~ ~~tred~~ (~~but~~ though the ~~latter~~ finance treatment is arrived at by first listing net int paid in VA of P+T, then creating fictitious "imputed" interest & service flows, ~~&~~ thus effectively transforming net int. paid by P+T into an "intermediate input")

For this reason, the Marxian ~~NIP~~ and NIPA/I-O relation ~~in~~ the case of ground-rent paid by business is the same as for finance charges & net int. paid. ~~Table~~ Figure 14 below summarizes this

Figure 14: Marxian + I-O Accts for Business Ground Rent



	Prod	Trade	Bus Ground Rent	FINAL DEMAND C	FINAL DEMAND I
Prod	xx	xx	xx	xx	xx
Trade	xx	xx	xx	xx	xx
Bus Gr. Rent	xx	xx	xx Not included	GFV*	
Wages	xx	xx	xx	GVA*	
Profit	xx	xx	xx		
GVA	xx	xx	xx		

$GVA^* = Y_P + Y_T + m_T + GR_P + GR_T$ | $GFU^* = C + I + m_T + m_{GR_B}$

Consumer GR — same treatment. In effect, unlike case of Business GR, these are also already counted in GVA — but here, disguised as part of Wages + Profit revenue. So they are just as if they are paid by Non Rental bus. to Rental, only through mediation of consumers ⇒ indeed to include m_{GR_H}

Buildings Rented are counted as K-stock of R+R sector (hence Amortization ...), not of P+T → BIAS in using K-stock?

B. Building Rentals

The activity of renting buildings is a business activity which buys commodities (buildings) and then sells them again, in piecemeal form. ~~The annual piecemeal sale of a building is accomplished~~ through the process of renting it out over its lifetime to a series of users. The annual building rental payments are therefore the annual piecemeal purchases of the building, which over its lifetime exhaust its use.

From the above point of view, the building rental sector is really a trading activity. Lit

Trader buys $100 of stock, adds it to INV → ΔI = ΔINV = 100 → sells $50 of it, for $60 = $50 + GTM

Suppose 10% of stock deteriorates?

Note that there is an assymetry in the NIPA/I-O treatment of gross invest versus ΔINV: namely, gross invest. includes replacement invest ⇒ gross change in the K_F-stock, whereas ΔINV is a net change in stock of inventories

i.e. IE. they treat inventory invest. as net & fixed capital invest as gross (since VA has depreciation)

Thus when we move purchases of buildings-to-be rented from (I_G) column of BR to ΔINV column of this sector, we have to switch from gross additions to net additions in order to be consistent ⟹ hence subtract Amortization of buildings to be rented.

Verify this by examples

Building Rental

4/17/85

(I) BR ⇔ Trading Sector

A. Trade Sector (i) Suppose Trade sector buys $100 in stock,

→ $(Invest)_T = \Delta INV_T = +\$100$

(ii) when it sells this for $\$100 = 100 + GTM$, it deducts $100 from INV (at cost)

$\Delta INV_T = -100$

and adds it to intermediate input: $m_T = 100$

→ ~~GTM~~ $= GO_T = m_T + GTM = 100 + 20 = 120$

(iii) The buying business adds it amount to its stock of inputs at $120, and when it uses this it reduces INV_B by 120 + increases M_B by $120 } (Net change in invent = 0)

B. Building Rental (i) BR office buys $1000 in buildings-to-be-rented out (or resold) → $\Delta INV_{BR} = +1000$

(ii) Over its lifetime, it rents thus out for $1200 = 1000 + 200
cost VA

→ Deducts cost from stock ⇒ $\Delta INV_{BR} = -1000 = -A_{BR_B}$

→ Adds $1000 to int. input = $m_{BR} = +1000$

Adds $(GTM)_{BR}^{=200}$ to thus to get gross output = 1200

(iii) The ~~rental~~ business of thus building treats it as a pure flow cost ("adds to INV = +1200 & "subtracts" to INV = -1200, so net change in INV = 0) as part of m_{BUS} of the same year

It should be clear from the above that ~~the~~ building rental is, on this context, merely a trade activity "stretched out" over a longer interval

→ Treat $BR_B + BR_C$ as a trade sector

→ ~~NEED~~ NEED TO ADJUST for Δ_{BR_C} (shows in trade comes from FACT that ~~A~~ is not listed as

4/17/85

(2) The formal similarity of Building Rental & Other trading sectors can be illustrated as follows: Trad Sector produces at product of $2000, which it then sells ~~[illegible]~~ $800 to trade and $200 to BR sectors. These ~~latter sectors~~ then are added to inventories in the latter sector.

To the extent that either ~~trade~~ sector sells the ~~product~~ goods purchase [sold outright by trade, sold piecemeal (rented) by BR], it deducts the cost from inventories & lists it as intermediate costs. But to the extent a portion of these goods are not sold, they appear as inventory investment, either intended or unintended (ΔINV). Here they are recorded at purchaser's prices, ~~even though they~~ since they are treated as having been (voluntarily or involuntarily) "purchased" by the trading & BR sectors themselves for "investment". ~~[illegible]~~.

Fin. Flows + S.V.

5/11/85

already counted as part of $GVA^* = GVA_p$, since it is already counted in wages W_p. So we measure GVA^* as before

$$GVA^* = (GVA_p) = W_p + \pi_p$$

But since wages W_p now consist of net wages W_p' and net int. paid out of wages NIP_{WP}

$$\therefore GVA^* = W_p + \pi_p = W_p' + (\pi_p + NIP_{WP}) = 1600$$

But NIP_{WP} shows up as $TR_F = m_F + W_F + \pi_F$

$$\therefore \boxed{GVA^*} = W_p' + (\pi_p + m_F + W_F + \pi_F) = 1600$$
$$= W_p + \pi_p = \boxed{GVA_p}$$

So here too, either we count GVA_p only, or we have a reduced $GVA_p' \equiv W_p' + \pi_p$ supplemented by $TR_F = GVA_F + m_F$

But the real question arises for measure of surplus value. If we define S as $GVA^* - W_p$, then $S \equiv GVA^* - W_p = \pi_p < \pi_p + (\pi_F) = \pi$

This implicitly treats aggregate surplus value as difference between gross value added and nominal wage W_p, so that unlike previous instance, revenue of finance does not get counted at all in surplus value (though it does in GVA^*).

Alternately, we could define $S' \equiv GVA^* - W_p' = GVA^* - (W_p - NIP_{WP})$

$$\Rightarrow S' = \pi_p + (m_F + W_F + \pi_F) > \pi$$

5/1/85

2. It seems that on the above bases we should count surplus value as GVA* minus net production worker wages (net of interest, finance charges, ~~and~~ ground rent, and net tax, paid).

This would make our procedure consistent throughout, and brings the measure of surplus value into conformity with the total of aggregate profits and circulation costs. Note that $\hat{S}$ does not have to be adjusted for trade & rental sector finance flows — only changes in W_P affect $\hat{S}$:

(i) Insofar as interest paid by trade sector itself is counted, it raises no new problems, since NIP_T is already counted as part of GVA* (under GVA_T). So we cannot count Finance sector on VA side at all, unless we reduce GVA_T by NIP_T

either: $GVA^* = GVA_P + GVA_T + m_T \Rightarrow \hat{S} = GVA^* - W_P$ ✓ ✓

$\Rightarrow \hat{S} = \Pi_P + TR_T + TR_F$

or $GVA^* = GVA_P' + GVA_T' + m_T + (m_F + w_F + \Pi_F)$

where $GVA_P' + GVA_T' = GVA_P + GVA_T - (NIP_P + NIP_T)$

and $NIP_P + NIP_T = TR_F = m_F + w_P + \Pi_F$ ✓

(ii) As for int. paid by trade sector workers, it is also already counted as part of GVA* (under W_T), so cannot be counted Finance sector on VA side unless we reduce W_T by NIP_{W_T}. In either case, however, the total GVA* + S are unchanged: $GVA^* = GVA_P + GVA_T + m_T$ $= GVA_P + GVA_T' - NIP_{W_T} + (TR_F)$

Profit is not a use: They should be I + R + RE

NEED FLOW OF FUNDS ACCOUNT, which is then linked to purchases (DD)

7/29/85

Prod		Trade		Finance
TR (Sources)	Uses	Sources	Uses	S / U
(Sales) $1000	400 M_P	2000	1000 costs of goods	NIP_{HF} = 500
	200 W_P		200 M_T	
	250 π_P		400 W_T	
	150 NIP_{HP}		150 π_T	
			250 NIP_{HT}	
1000	1000	2000	2000	

H H (0)

Sources	Uses
$W_P + W_T$ = 600	C_W = 600
$\pi_P + \pi_T$ = 400	C_π = 200
$GIR_H = (NIP_{P+T})_H$ = 400	S_π = 100
	GIP_{HF} = 500
1400	1400

Gross Int. Received

Gross int. paid

Finance (0)

S	U
GIP_{HF} = 500	100 M_F
	200 W_F
	200 π

⇓

H H

S	U
$W = W_P + W_T + W_F$ = 800	C_W = 800 } 1100
$\pi = \pi_P + \pi_T + \pi_F$ = 600	C_π = 300 } C^t = 1600
GIR_H = 400	S = 200
[$IMPNIR_{HF}$ = 500 = $IMPNIP_{FH}$]	GIP_{HF} = 500
	[$IMPSCP_{HF}$ = 500 = $IMPSCR_{FH}$]

Finance

S	U
GIR_{FH} = 500 = GIP_{HF}	100 M_F
[$IMPSCR_{FH}$ = 500]	200 W_F
	200 π_F
	[500 = $IMPNIP_{FH}$]
500	500
[1000]	[1000]

GIP_{HF} = 500 ⟷ As if P+T pay int. directly to F ($400) + Households pay NIP_{HF} = 100 extra → Total = 500

⇓

S	U
IMPSCR = 500	100 M_F
	200 W_F
	200 π_F (NIP = 0)

1972 : I-O TABLE TREATED AS PRODUCTION, TRADE, [illegible], FINANCE, & GOVERNMENT

$$GVA^* \cong (Y - Y_G - Y_{RF} - D_{BR}) + (m_T + m_R) + (SC_P + SC_T + SC_R - Y_F)$$

$$= (1182766 - 131948 - 60,800 - (21,400)) + (47310 + 30153) +$$

$$(13453 + 2971 + 3344 - 43970) = (969,118) + (77463) + (24202)$$

$$= 1,036,937 \quad (87.6\% \text{ of } GNP)$$

$GNP_{1972} = 1,182,766$

with Corrections 7/80

Y_G = 131,778

Y_{RF} * = 60,800

D_R ** = 21,257

Y_F = 43,970

SC_P = 13,453

SC_T = 2,971

SC_R = 3,344

m_T = 47,310

m_R = 30,153

SC_T = Total SC − SC_P = 35,330 − 15,562 = 19,768 ✓

disc. = 5122

$$GFU^* \cong (FD - Y_G - Y_{RF} - D_{BR}) + (m_T + m_R) + (m_F - SC_H - SC_G - SC_{X-M})$$

$$= (1182766 - 131948 - 60,800 - (21,400)) + (47310 + 30153) +$$

$$(18354 - 39035 - 3014 - 90) = (969,118) + (77463) - (23785)$$

$$= 1,036,937$$

(+417)

Difference solely due to fact that I-O Finance Industry Row + Col. sums differ by 417 : $GO_F - TCO_F = 417$ ✓

Col. Sum

FINANCE SECTOR: $m_F + SC_F + Y_F = GO_F$

18354 + 15,562 + 43970 = 77886

Row Sum

$(SC_P + SC_T + SC_R) + SC_F + SC_H + SC_{X-M} + SC_G = TCO_F$

19768 + 15,562 + 39035 (185-165) + 3014

= 77,469

Note that row/column sums differ from Finance Sector, 1972 I-O table.

~~$d_{BR} = (d/GNP)_F \cdot (GNP)_{NI} = (d/GNP)_F (Y_R - Y_{RO}) = (\text{Capital Cons. Allow. Rate}) \cdot (\text{Gross Rental Income}) = 6.6\% \cdot 6402 = 422$~~

~~d_{BR} = Estimated by using $(d/GNP)_F$ Finance + Service Firms = similar type of operation.~~

* Y_{RF} = Imputed Value Added in Rental Sector = GNP of Owner-Occupied Farm & non-Farm Housing Svcs. of = Table 8.3, lines 63+75

** $A_{BR} \equiv D_{BR_{NI}} - d_{BR_{NI}}$ = Recorded Capital Cons. Allowance in Non-Imputed Rental Sector − Estimated Depreciation (as opposed w/ Imputing of Rented Building)

$(D_{OR})_{NI} = D_{BR} - (D_R)_{Imputed} = 21,400 - 15,960$ [Table 6:1, Line 152, NIPA 29-74 − Table 8.3, lines 64+76] = 6,100

d_{BR} → see ES Finance B/L, 7/31/80

Tasks: Ahmet

1. Calculate GVA^*, GFU^*

2. Present components of the two sides

See I-O mapping chart.

$$\begin{cases} GVA^* = GVA^*_P + GVA^*_T + \cdots \\ GFU^* = C^* + I^* + \cdots \end{cases}$$

3. Check to see if reallocations of secondary products in I-O sectors means that $(W_P)_{I\text{-}O} \cong (W_P)_P$ in NIPA

$\Rightarrow$ Should reduce but not eliminate ~~diff~~ $(W_P)_U$

Jule || (1) Jule: Break I-O GVA into broad components: Y_P, Y_T, Y_F, Y_R, Y_G

— Compare these to NIPA.

7/30/81

1972 & Earlier Tables: Differences

I Secondary Products

1. 1972 redefines all secondary products

   (i) Output of secondary product is reallocated to industry which primarily produces such products

   (ii) ~~Input~~ A relevant mixture of inputs is also reallocated

   (1972 I-O Def. & Conventions, p. 49)

2. Earlier Tables used mixture of ~~ref~~ redefinition and transfer

   ~~(~~ Transfer:

   (1) Secondary product was treated as if it was sold to primary producer, and then added to the output of that (primary) industry.

1972 & Earlier Tables: Differences 7/30/8

(11) To Trace this, let us first imagine that there are two ~~industries~~ products (steel & iron) which appear as two establishments A = Steel + $\frac{1}{2}$ iron

B = $\frac{1}{2}$ iron

By Commodity

	Steel	Iron	C	I	GO
Steel	50	100	350	500	1000 ✓
Iron	100	300	300	300	1000 ✓
W	250	300			
π	600	300			
GO	1000	1000			

To combine these by establishments table must be reallocated and rebalanced

a) $\frac{1}{2}$ of iron column must be combined with steel to get Establishment A input structure

b) Then, $\frac{1}{2}$ of steel sales must be added ~~Est.~~ A row to get Establishment A sales

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By Establishment A = Steel + ½ Iron
B = ½ Iron

	A	B	C	I	GO	TR
A	225	125	500	650	1500	✓
B	125	75	150	150	500	✓
W	400	150				
π	750	150				
GO	1500 ✓	500 ✓				
TR	5	5				

(iii) Pre-1972 I-O tables would reallocate by method of transfer

a) Iron in Establishment A is treated as if sold to Establishment B — It therefore is still counted in Establishment A output

Iron purchased by B is also added to B's output (p. 49)

Aggregation

(A+B)

A+B (100+550-500)+250+150 = 550 = 225+125+125+75 ✓ 650 800 2000 ✓

$A_A + A_B + B_A + B_B$ - TR b)

W 550

π 900

2000 ✓

= GO - TR

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Iron in EST A = $500 by construction

- Add $500 to A's sales to B
- Add $500 to B's output ⇒ allocate it along B's row
- Rebalance table, since now it looks like this:

	A	B	C	I	GO
A	225	$\boxed{625}$ (125+500)	500	650	$\boxed{2000}$ (1500+500)
B	125	75	150	150	500
W	400	150			
π	750	150			
GO	1500	$\boxed{1000}$ (500+500)			

Re Balance by moving $500 worth of iron distribution (iron row) from A to B. List amounts transferred in transfer row & column for use in aggregation

	A	B	C	I	GO	πR
A	100 (225-125)	550 (625-75)	350	500	1500 (2000-500)	$\boxed{500}$
B	250 (125+125)	150 (75+75)	300	300	1000 (500+500)	—
W	400	150				
π	750	150				
GO	1500	1000				
$\boxed{\text{πR}}$	[illegible]	500				

2. (iv) End Result is a table which has [illegible] than true (commodity table)

Commodity Table

	Steel	Iron	C	I	GO
Steel	50	100	350	500	1000
Iron	100	300	300	300	1000
W	250	300			
π	600	300			
GO	1000	1000			

Pre-1972 I-O Table

	Steel	Iron	C	I	GO	TR
Steel	100	550	350	500	1500	500 = TR_1
Iron	250	150	300	300	1000	—
W	400	150				
π	750	150				
GO	1500	1000				
TR	—	500 = TR_2				

	Steel	Iron	Total
Deviations of GO	+500	—	+500. → Total inputs are inflated
" " GVA	+300	-300	—
" " GFD	—	—	— } But total VA F.D is not changed

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Aggregation of these sectors cancels out this distortion, since ~~=~~ transfer column & rows are used to adjust aggregates

EG, if we aggregate Pre-1972 IO Table,

Prod	C	I	G
Prod	550 ✓ = 100 + 550 − TR₁ + 250 + 150	650	800	2000 ✓
W_p	550	—	—	
T_p	900	—	—	
GO	2000 ✓			

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3. Now consider an example of P + T

(I) True Table

	Prod	Trade	C	I	GO
Prod	50	100	350	500	1000
Trade	100	200	300	300	1000
W	250	300			
Π	600	300			
GO	1000	1000			

GFD* = 1850

GVA* = 1850

(II) Establishment Table : A = Prod + ½ Trade
B = ½ Trade

	A	B	C	I	GO
A	225	125	500	650	1500
B	125	75	150	150	500
W	400	150			
Π	750	150			
GO	1500	500			

1650 < GFV* = 1850

1650 < GVA* = 1850

Note that GVA & GFD are same as in true table

But now GVA* ≠ entries in solid outlined area

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(iii) Now Pre-1972 Style I-O with transfers (same as in 2 iii)

	Prod	Trade	C	I	GO	TR
Prod	100	550	350	500	1500	500 (TR)
Trade	250	150	300	300	1000	
W	400	150	2150 > GFD* = 1850			
TI	750	150				
GO	1500	1000				
TR	—	500 (TR_2)	2150 > GVA* = 1850			

Now, once again GVA = GFD = 1450

but ~~shaded~~ outlined areas do not add up to GVA*, GFU*

Moreover, the difference is not simply due to "Transfers" Col/Row, since these adjustments themselves only were adjustments to the recorded data in Establishment Survey [3(ii)] and thus from itself is the thing which needs to be adjusted.

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Upshot of this is that the only proper way to deal with pre-1972 tables is to recalculate them in 1972-for. —— which means that

4. Summary

(I) ~~As~~ far as production sectors are concerned, proper aggregation (i.e. taking out transfers, as on p. 6) will cancel out transfers and also eliminate errors in establishment vs-a-vis (true) commodity flow

Note that in any case, GVA = GPD = Y is not affected

(II) As far as production sectors versus trade sector, the problem is one of ignoring, lack of redefining, rather than transferring, the trade "service" within production ~~sect~~ establishments

BUT NOTE: Transfers into Trade in 1967 = 5,717, Y_{GTM} = 163,365
$\Rightarrow TR/GTM = .035$ (= 3%). Since $\left(\frac{GTM}{GVA^{*}}\right)_{1972} = .913$ this indicates small errors

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$\therefore$ Thus if $\left(\frac{GTM}{GVA^*}\right)_{67} \simeq \left(\frac{GTM}{GVA^*}\right)_{1972} = .213$

Suppose GTM_{1967} = as listed in I-O

$GTM\left(1 \pm \frac{\Delta R}{GTM}\right) = GTM'_{1967} = GTM(1.03)$

Then $\left(\frac{GTM'}{GVA^*}\right)_{1967} = \left(\frac{GTM}{GVA^*}\right)_{1967}(\pm 1.035) \simeq .213)(1.035)$

$\therefore \left(\frac{\Delta GTM}{GVA^*}\right)_{1967} = (.213)(\pm .035) = \pm .007$

Thus a negligible difference in practice