『家計内生産関数』の研究を通して見えたもの

荒山裕行

https://ru.wikipedia.org/wiki/Д о н_К и х о т

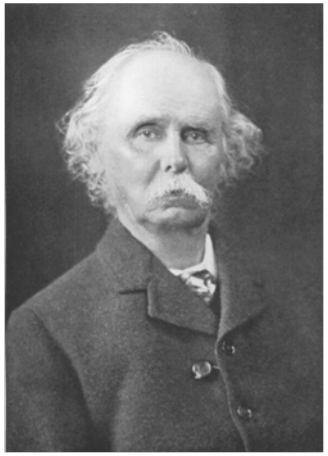
http://blog.livedoor.jp/pintor_toshiki/archives/451172.html

『価格理論』vs.『ミクロ経済学』

https://upload.wikimedia.org/wikipedia/commons/1/10/WilliamStanleyJevons.jpg

William S. Jevons (1835-1882)

https://upload.wikimedia.org/wikipedia/commons/8/82/Alfred_Marshall.jpg



Alfred Marshall (1842-1924)

http://uplandseconyear12ib.weebly.com/arthur-pigou.html

Arthur Cecil Pigou (1877-1959)

https://upload.wikimedia.org/wikipedia/commons/9/9d/Kenneth_Arrow%2C_Stanford_University.jpg

Kenneth Arrow (1921-)

---------『ミクロ経済学』 ---------------→

https://upload.wikimedia.org/wikipedia/commons/0/0a/AdamSmith.jpg

Adam Smith(1723-1790)

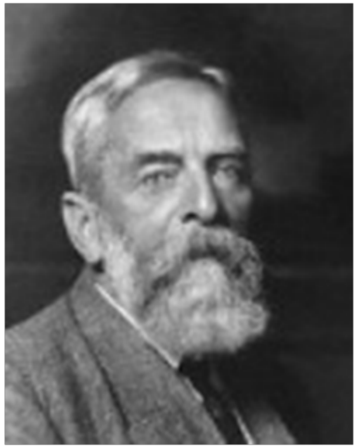
Léon Walras (1834-1910)

https://upload.wikimedia.org/wikipedia/commons/9/9e/Lwalras.jpg

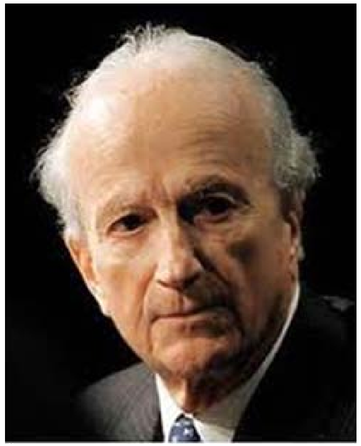
https://upload.wikimedia.org/wikipedia/commons/9/98/CarlMenger.png

Carl Menger (1840-1921)

https://upload.wikimedia.org/wikipedia/commons/5/54/1wieser.jpg



Friedrich von Wieser (1851-1926)

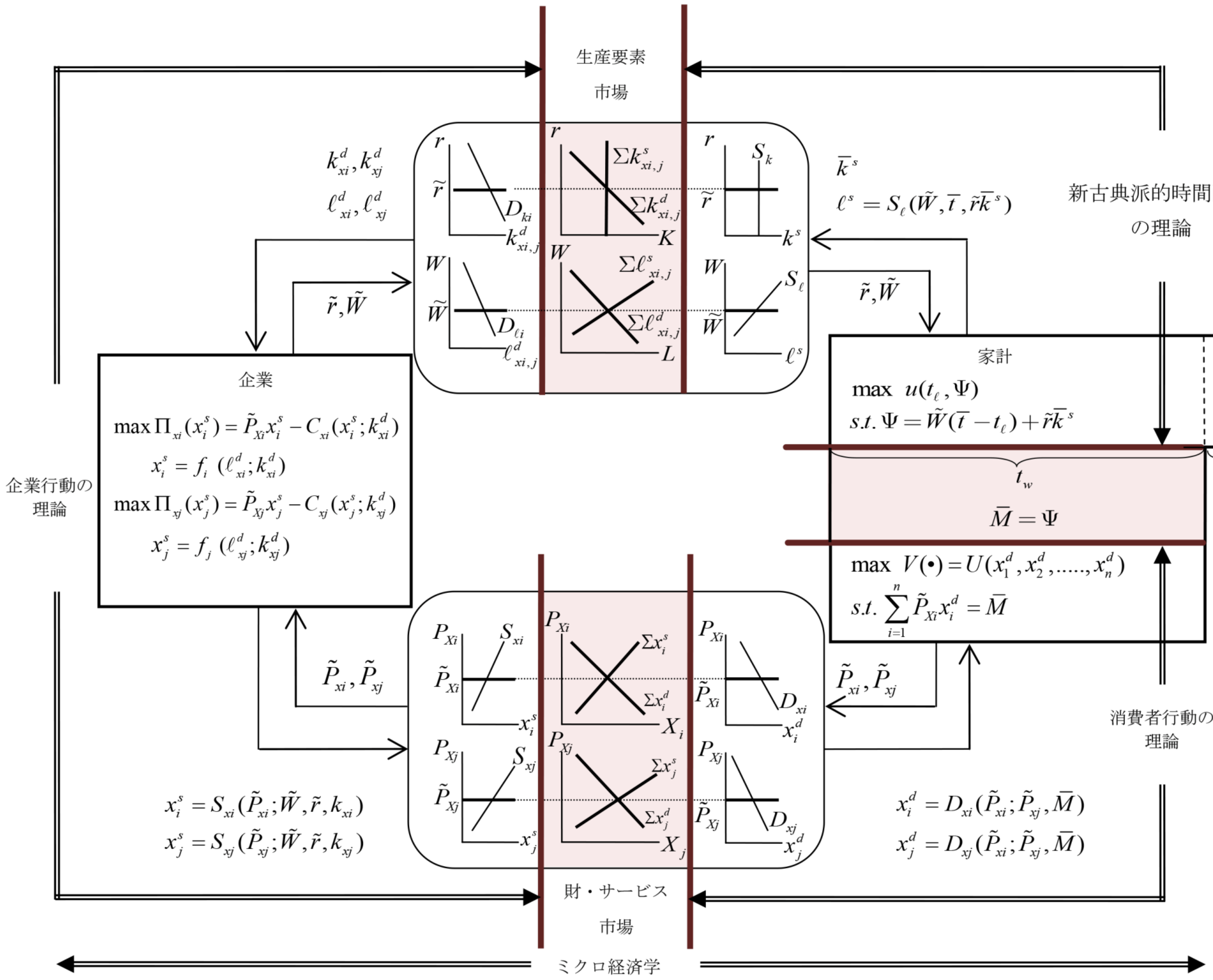


Gary Becker (1929-2014)

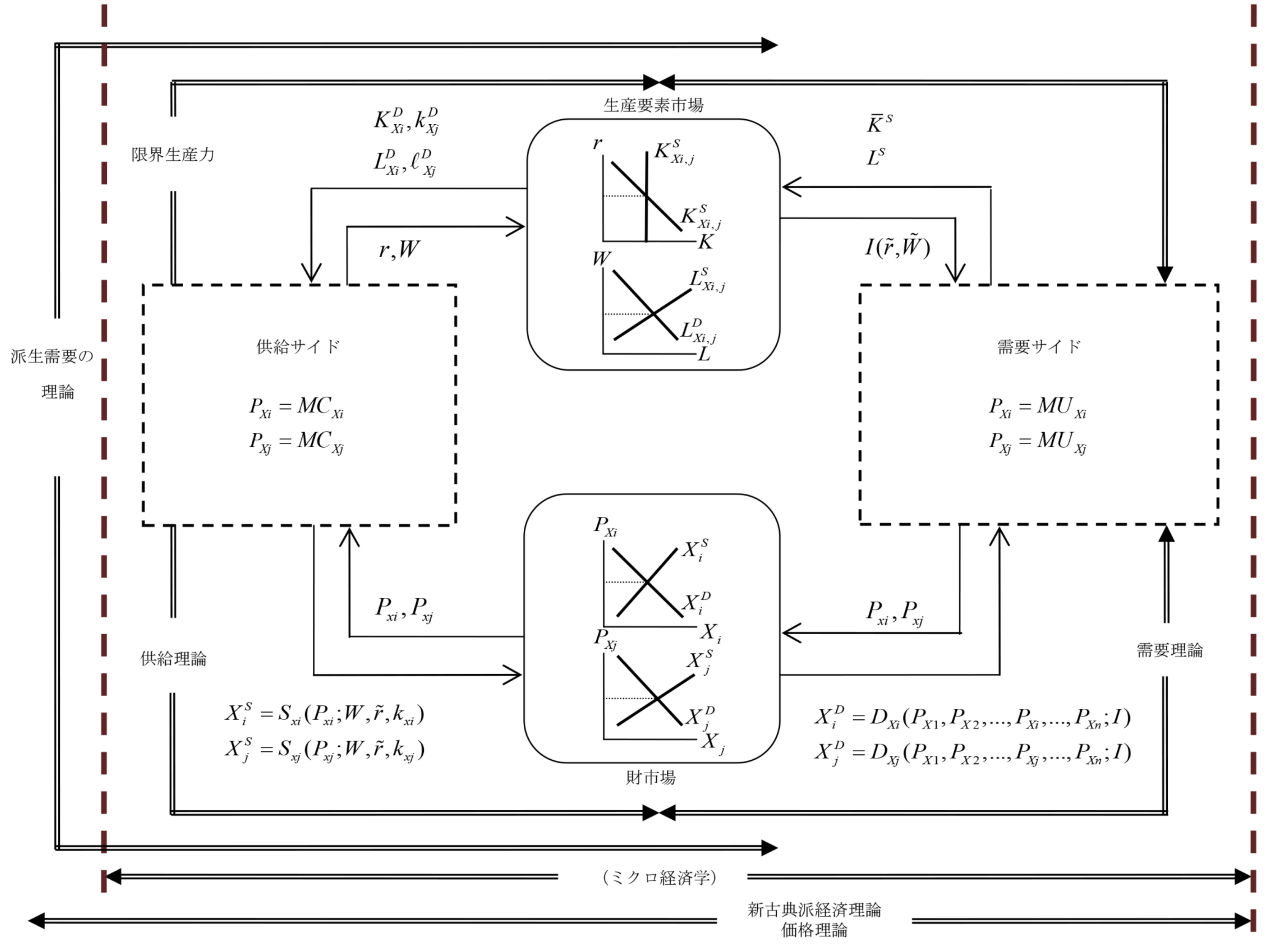
http://rightweb.irc-online.org/profile/Becker_Gary

------ウイーン学派 ------------------------------------ 『価格理論』 --→

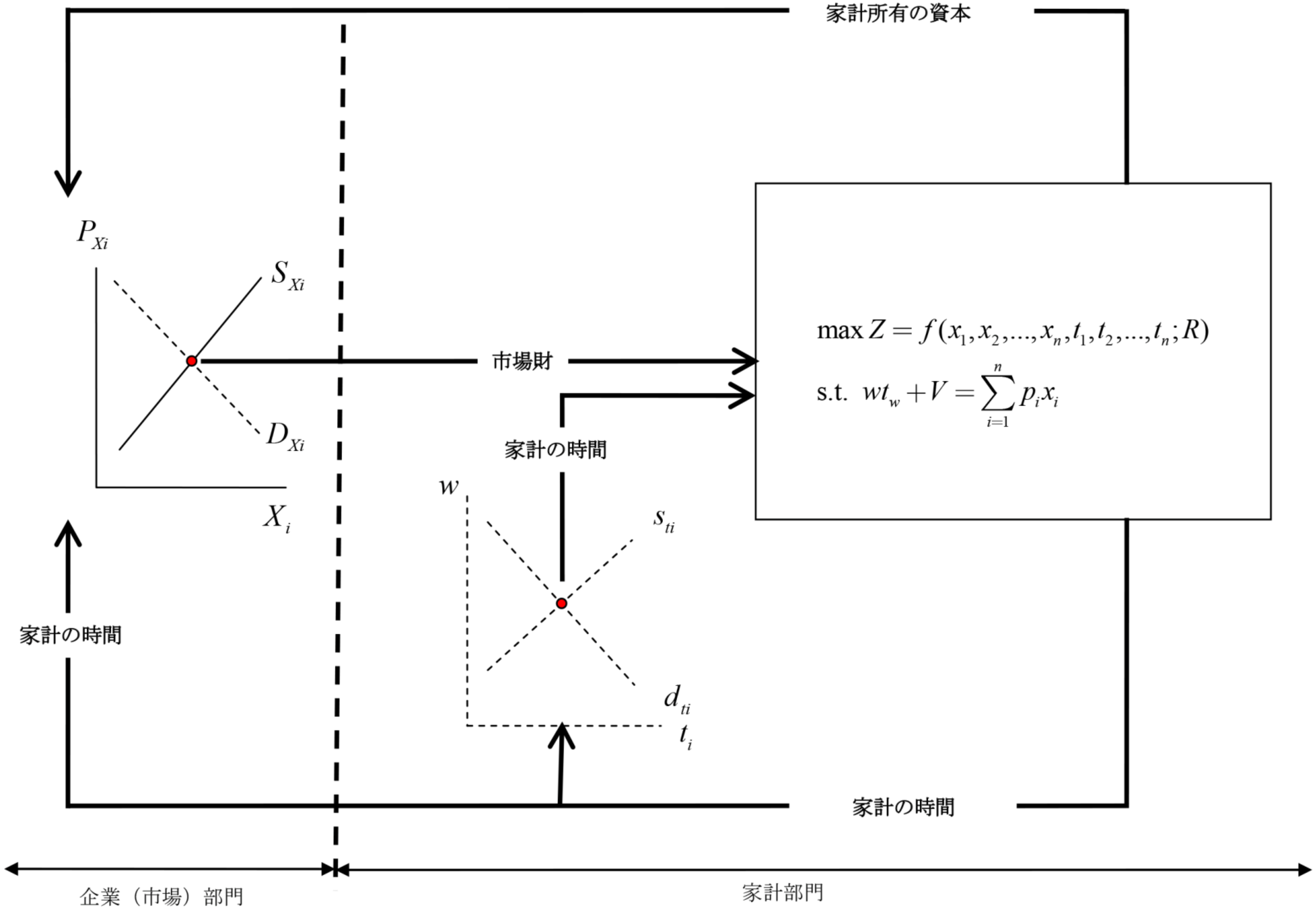
『ミクロ経済学』


生産要素
市場
新古典派的時間配分
の理論
企業
家計
企業行動の
理論
消費者行動の
理論
財・サービス
市場
ミクロ経済学

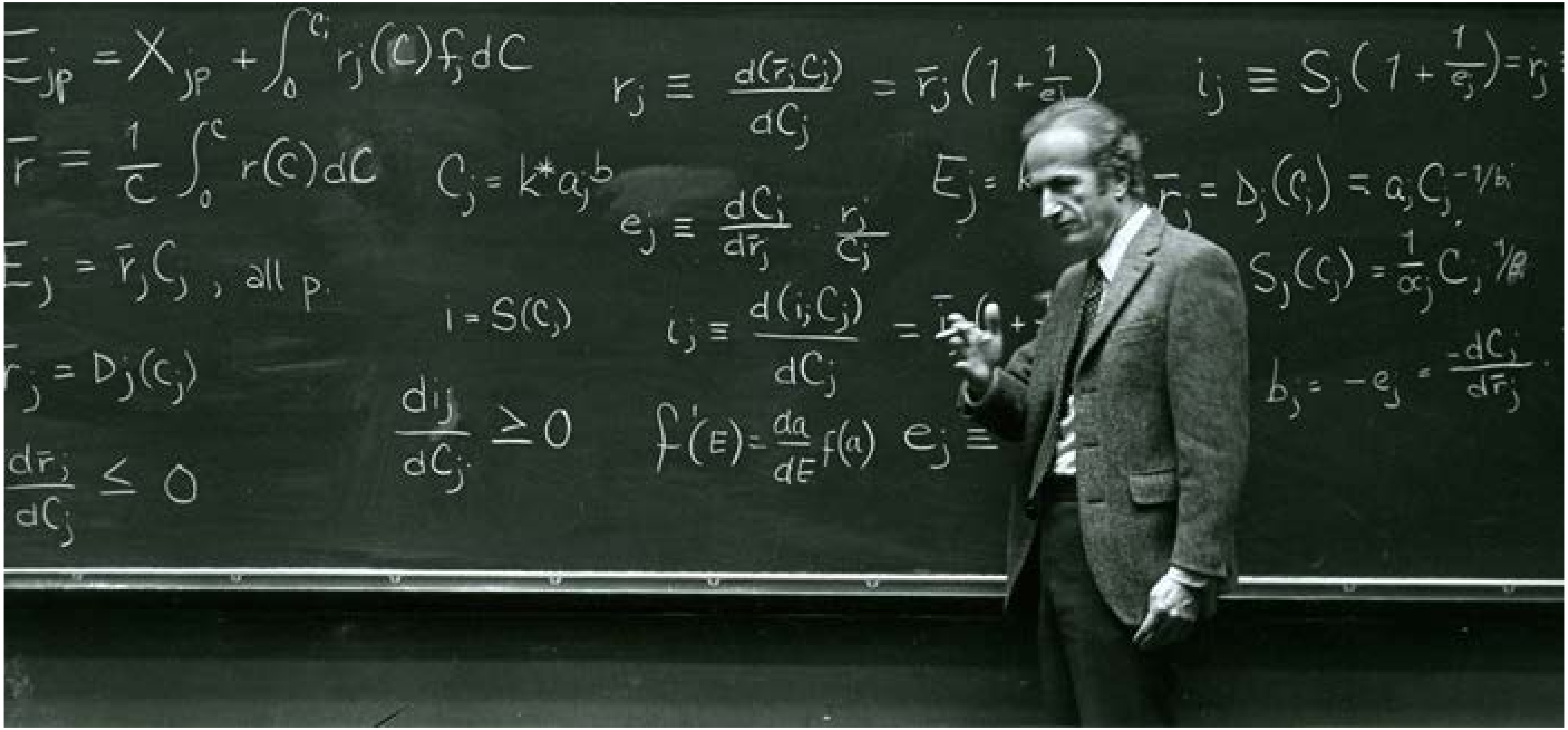
『価格理論』


生産要素市場
K^D_{Xi}, k^D_{Xj}
L^D_{Xi}, ℓ^D_{Xj}
限界生産力
r
$K^S_{Xi,j}$
$K^S_{Xi,j}$
K
W
$L^S_{Xi,j}$
$L^D_{Xi,j}$
L
$\bar{K}^S$
L^S
r, W
$I(\tilde{r}, \tilde{W})$
派生需要の理論
供給サイド
$P_{Xi} = MC_{Xi}$
$P_{Xj} = MC_{Xj}$
需要サイド
$P_{Xi} = MU_{Xi}$
$P_{Xj} = MU_{Xj}$
P_{Xi}
X_i^S
X_i^D
X_i
P_{Xj}
X_j^S
X_j^D
X_j
P_{xi}, P_{xj}
P_{xi}, P_{xj}
供給理論
需要理論
$X_i^S = S_{xi}(P_{xi}; W, \tilde{r}, k_{xi})$
$X_j^S = S_{xj}(P_{xj}; W, \tilde{r}, k_{xj})$
$X_i^D = D_{Xi}(P_{X1}, P_{X2}, ..., P_{Xi}, ..., P_{Xn}; I)$
$X_j^D = D_{Xj}(P_{X1}, P_{X2}, ..., P_{Xj}, ..., P_{Xn}; I)$
財市場
（ミクロ経済学）
新古典派経済理論
価格理論

家計内生産の理論（「派生需要の理論」）

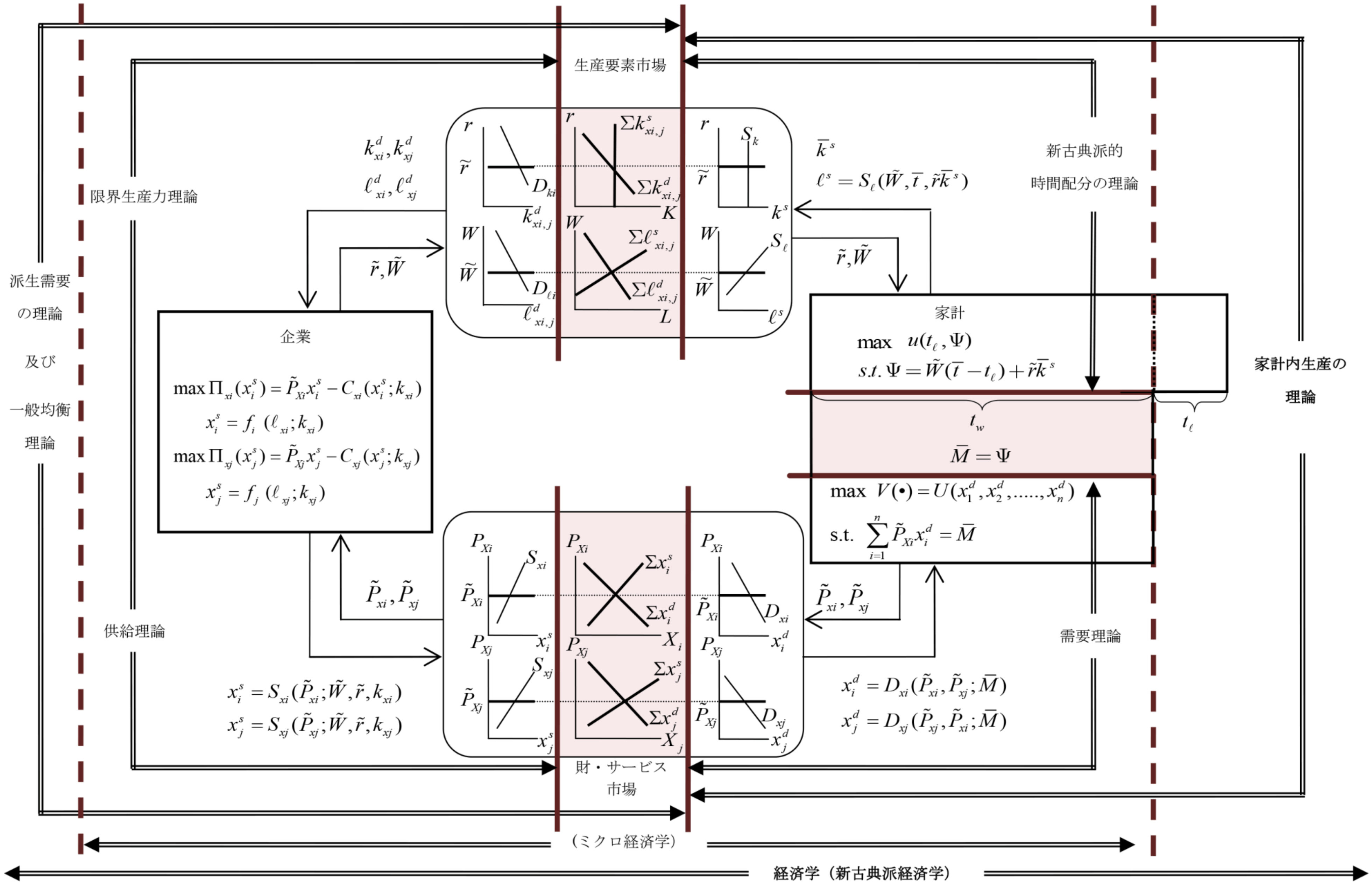


ベッカー教授



http://mag.uchicago.edu/economics-business/theory-allocation-nobelist’s-time

『経済理論』（『価格理論』＋『ミクロ経済学』）



『Arayama Equation』

Inner:

＊未発表の方程式ため、隠させていただいております。

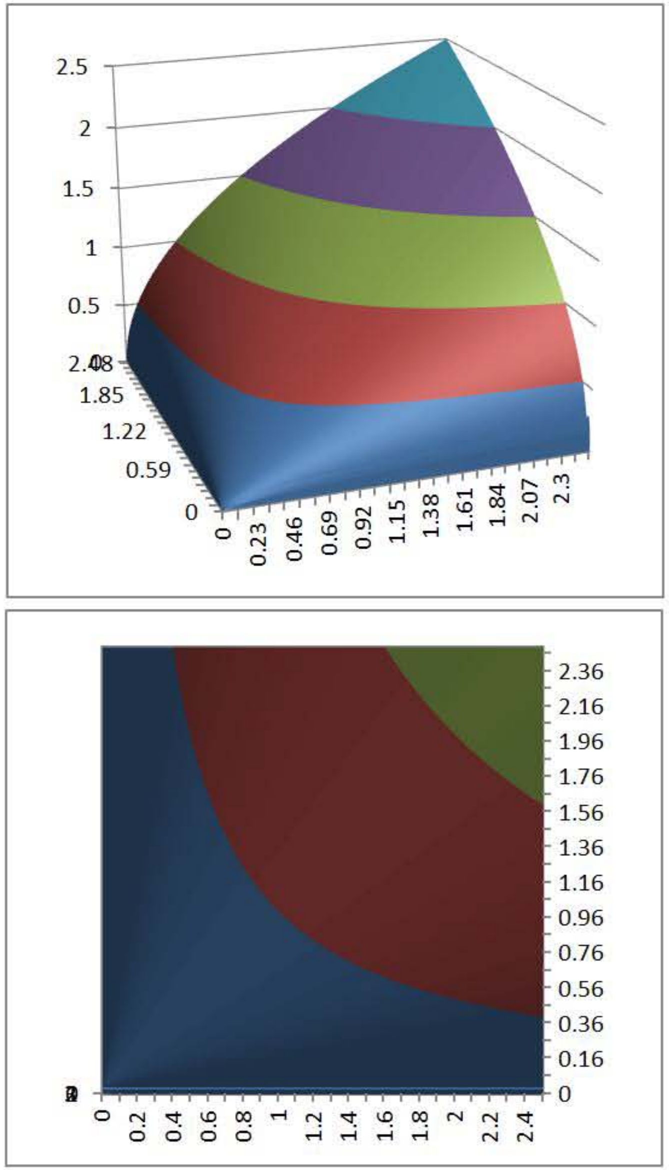
Outer Cone:

＊未発表の方程式ため、隠させていただいております。

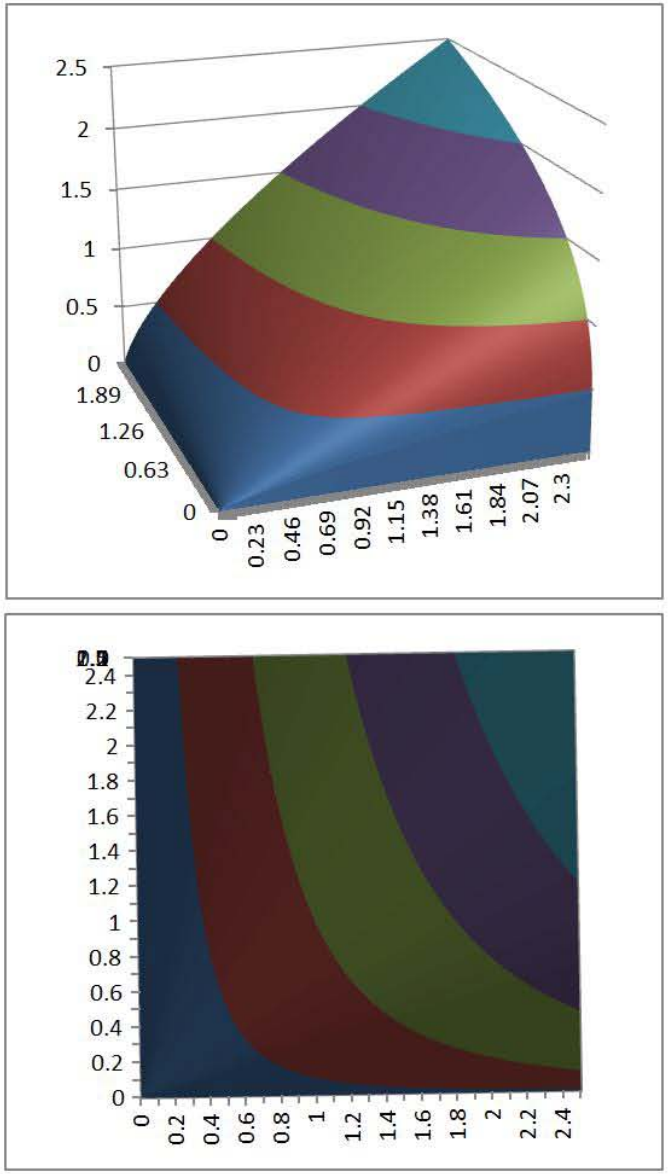
Cobb-Douglas Cone:

$$Y = \mathrm{A}K_{total}^{(observable)\beta} L_{total}^{(observable)\gamma}$$

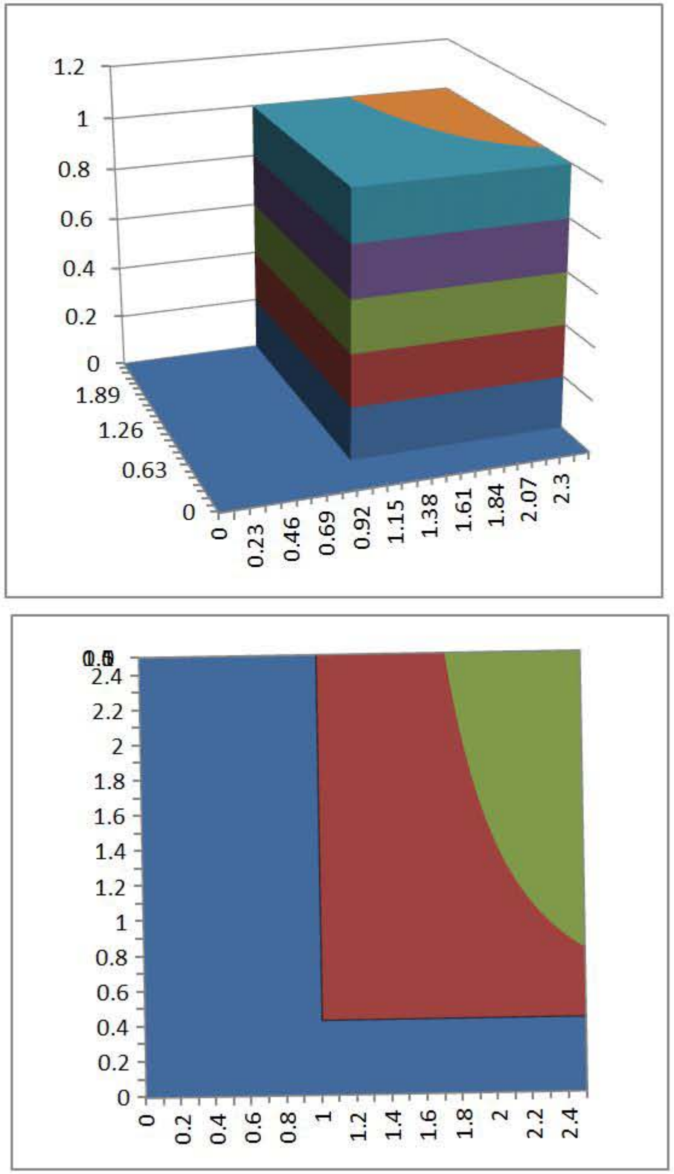
生産関数曲面



雇用部門

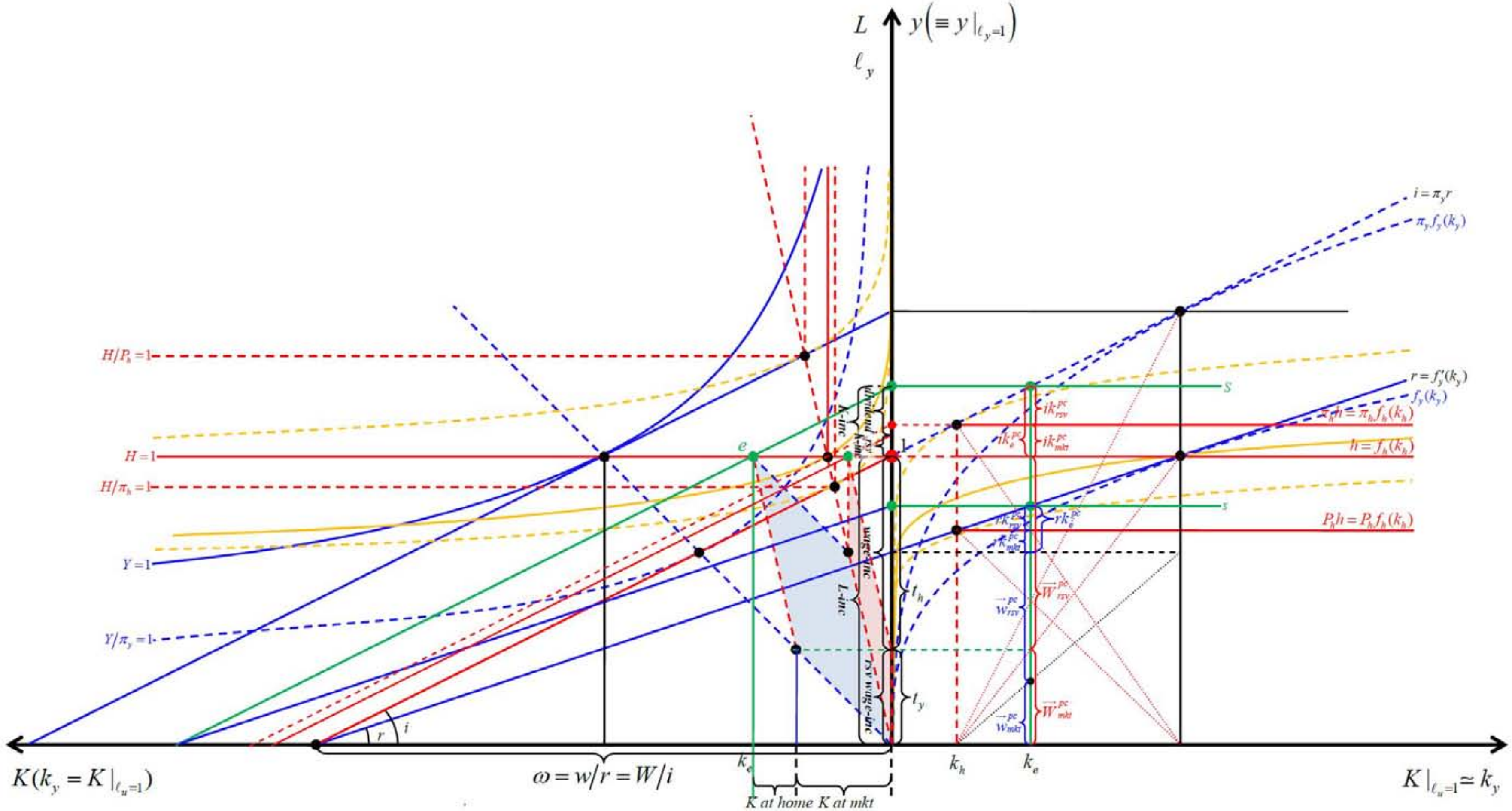


家計一世間相場



一家計

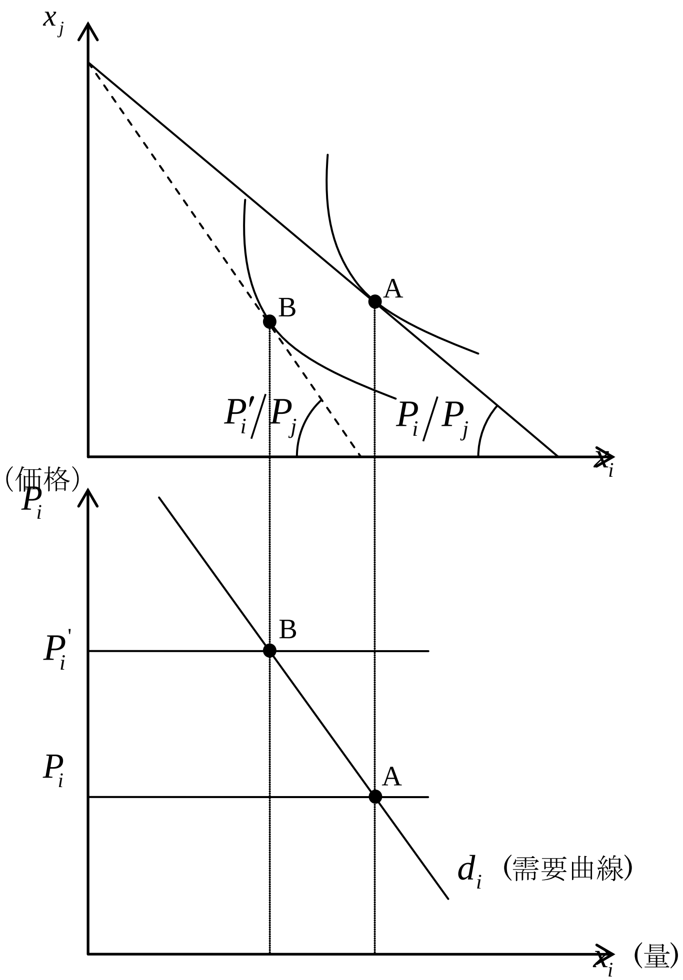
『家計内生産を含む一般均衡理論ーリファレンス図』



『家計内生産関数』の研究を通して見えたもの

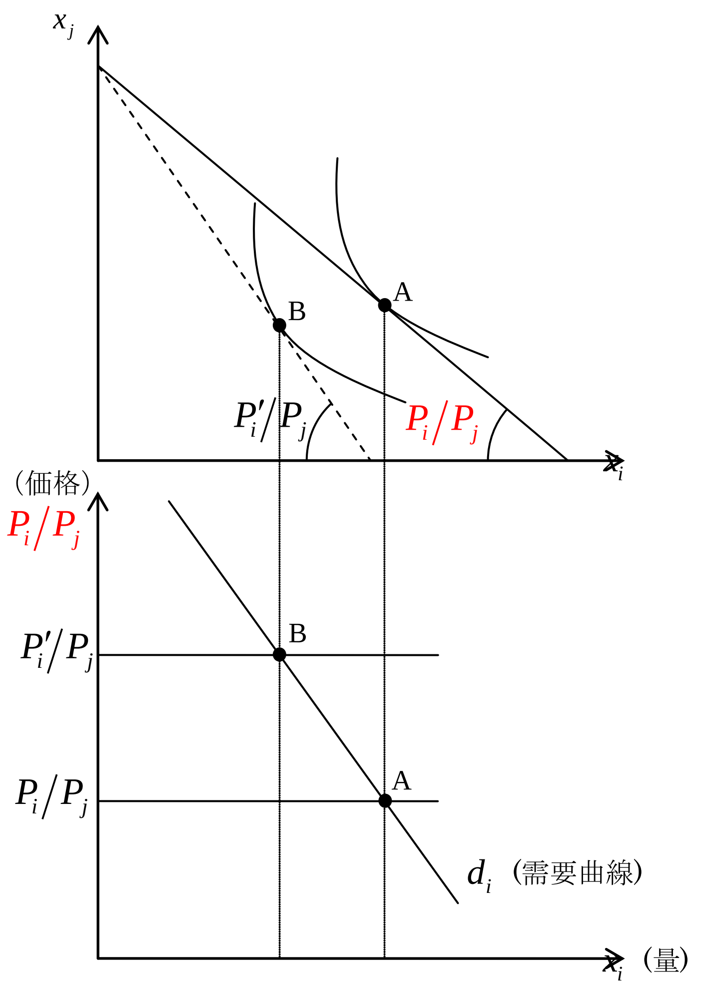
（入門テキストブック：部分均衡分析）

$$\begin{cases} \max \quad u = u(x_i, x_j) & \cdots \text{効用関数} \\ s.t. \quad P_i\ x_i + P_j\ x_j = M & \cdots \text{予算制約式} \end{cases}$$



数量方程式

$$\begin{cases} \max \quad {}^{util}u = u({}^{apple}x_i,\ {}^{pencil}x_j) & \cdots \text{効用関数} \\ s.t. \quad {}^{\$}P_i\,{}^{apple}x_i + {}^{\$}P_j\,{}^{pencil}x_j = {}^{\$}M & \cdots \text{予算制約式} \end{cases}$$



Partial Equilibrium (n-goods):

$$\begin{cases} \max \ u = u(x_1, x_2, \ldots\ldots\ldots, {}^{apple}x_i, {}^{pencil}x_j, \ldots\ldots\ldots\ldots x_n) \\ s.t. \ \ {}^{\$}\overline{P}_1 x_1 + {}^{\$}\overline{P}_2 x_2 + \ldots\ldots + {}^{\$}\overline{P}_i \, {}^{apple}x_i + {}^{\$}\overline{P}_j \, {}^{pencil}x_j + \ldots\ldots + {}^{\$}\overline{P}_n x_n = {}^{\$}\overline{M} \end{cases}$$

Which budget constraint after all?

$\Big[\ {}^{\$}\overline{P}_1 x_1 + {}^{\$}\overline{P}_2 x_2 + \dots\dots + {}^{\$}\overline{P}_i x_i + {}^{\$}\overline{P}_j x_j + \dots\dots + {}^{\$}\overline{P}_n x_n = {}^{\$}\overline{M}$ ---------(1)general nominal equation

$\Big[\ {}^{\$}\overline{P}_1 x_1 + {}^{\$}\overline{P}_2 x_2 + \dots\dots + {}^{\$}\overline{P}_i x_i + {}^{\$}\overline{P}_j x_j + \dots\dots + {}^{\$}1 x_n = {}^{\$}\overline{M}$ -----------(2) "quasi-nominal" equation when nth good whose price is

$1 is chosen as denomination (=numeraire).

$\Bigg[\ \frac{{}^{\$}\overline{P}_1}{{}^{\$}\overline{P}_n} x_1 + \frac{{}^{\$}\overline{P}_2}{{}^{\$}\overline{P}_n} x_2 + \dots\dots + \frac{{}^{\$}\overline{P}_i}{{}^{\$}\overline{P}_n} x_i + \frac{{}^{\$}\overline{P}_j}{{}^{\$}\overline{P}_n} x_j + \dots\dots + x_n = \frac{{}^{\$}\overline{M}}{{}^{\$}\overline{P}_n}$ ------(3) real in terms of numeraire

$\Big[\ \overline{P}_1 x_1 + \overline{P}_2 x_2 + \dots\dots + \overline{P}_i x_i + \overline{P}_j x_j + \dots\dots + 1 x_n = \overline{M}$ ----------------(4) when ${}^{\$}P_n = \$1$ (namely no name (=denomination).

We can put $ denomination for convenience as

$\Big[\ {}^{\$}\overline{P}_1 x_1 + {}^{\$}\overline{P}_2 x_2 + \dots\dots + {}^{\$}\overline{P}_i x_i + {}^{\$}\overline{P}_j x_j + \dots\dots + {}^{\$}1 x_n = {}^{\$}\overline{M}$ ----------(2')

$\Big[\ \overline{p}_1 x_1 + \overline{p}_2 x_2 + \dots\dots + \overline{p}_i x_i + \overline{p}_j x_j + \dots\dots + x_n = \overline{m}$ -------------------(5) real in terms of numeraire

(2) and (2') are equivalent expressions . This is what economics is doing conventionally.

Namely, choosing a good whose nominal price is 1 as numeraire.

Obviously, (3) ,(4)&(5) are equivalent!

[logical (mathematical) conversion from relative to nominal]

$\Big[\ \overline{p}_1 x_1 + \overline{p}_2 x_2 + \dots\dots + \overline{p}_i x_i + \overline{p}_j x_j + \dots\dots + x_n = \overline{m}$

$\Bigg[\ \frac{{}^{\$}\overline{P}_1}{{}^{\$}\overline{P}_n} x_1 + \frac{{}^{\$}\overline{P}_2}{{}^{\$}\overline{P}_n} x_2 + \dots\dots + \frac{{}^{\$}\overline{P}_i}{{}^{\$}\overline{P}_n} x_i + \frac{{}^{\$}\overline{P}_j}{{}^{\$}\overline{P}_n} x_j + \dots\dots + x_n = \frac{{}^{\$}\overline{M}}{{}^{\$}\overline{P}_n}$

$\Big[\ {}^{\$}\overline{P}_1 x_1 + {}^{\$}\overline{P}_2 x_2 + \dots\dots + {}^{\$}\overline{P}_i x_i + {}^{\$}\overline{P}_j x_j + \dots\dots + {}^{\$}\overline{P}_n x_n = {}^{\$}\overline{M}$

If ${}^{\$}\overline{P}_n = \$10$, (2) means a case for 1/10 denomination!

スミスの「見えざる手」

「誤解を招いた」レトリック？

http://www.wikiberal.org/images/9/98/Greenspan.jpg

効率市場仮説

The Efficient-market Hypothesis (**EMH**)

(Asset prices fully reflect all available information)

ユージン ファーマ　Eugene FAMA

Nobel Prize Laureate, 2013

https://upload.wikimedia.org/wikipedia/commons/f/f5/Eugene_Fama_at_Nobel_Prize%2C_2013.jpg

Hhe EMH is preceded by Hayek's (1945) argument that markets are the most effective way of aggregating the pieces of information dispersed amongst individuals within a society.

フリーランチなんてものは存在しない！

There is no such kind of thing as a free lunch!

ミルトン フリードマン Milton FRIEDMAN

Nobel Prize Laureate, 1976

http://b-i.forbesimg.com/stevedenning/files/2013/07/MiltonFriedman3.jpg

中嶋千尋

丸山義皓

吉田　忠

今村奈良臣

*

D. Gale Johnson

Yair Mudlak

Gary.S.Becker

George Tolley

Jacob Frenkel

*

飯田経夫

眞継　隆

四方義啓

*

Wolfgang Mazal

Gudrun Biffl

*

Wally Thurman・Fwu-Rank Chang

*

瀧　敦弘・竹歳一紀・宮永　輝・杉浦立明・丁　紅衛・土井康裕・渡邊　聡

犬塚（濱中）章栄・見吉克也・寺西都晃・生田大輔・小崎卓也・鈴木健介・アルバロ　ドミンゲス・竹中昂平

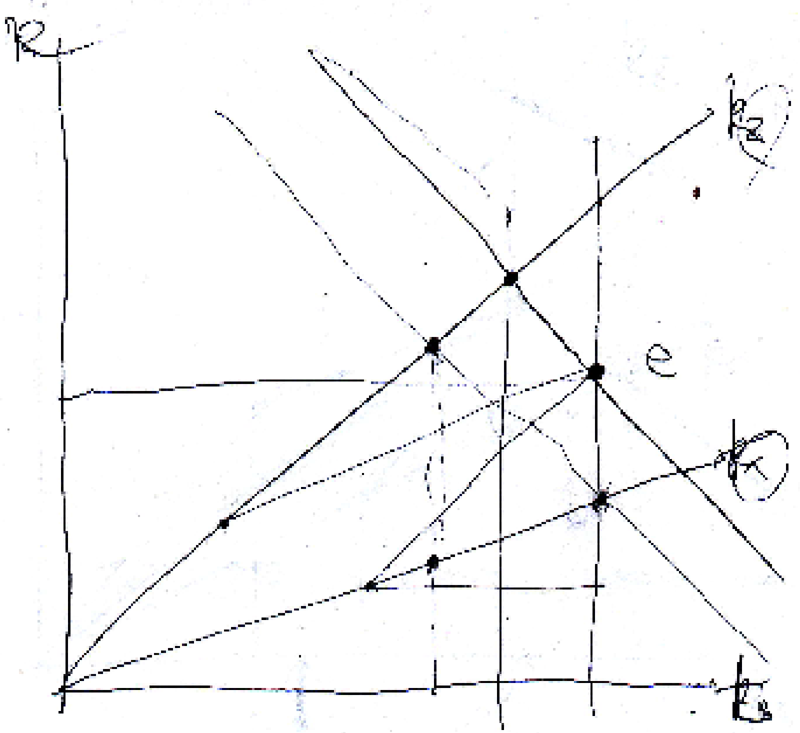
*

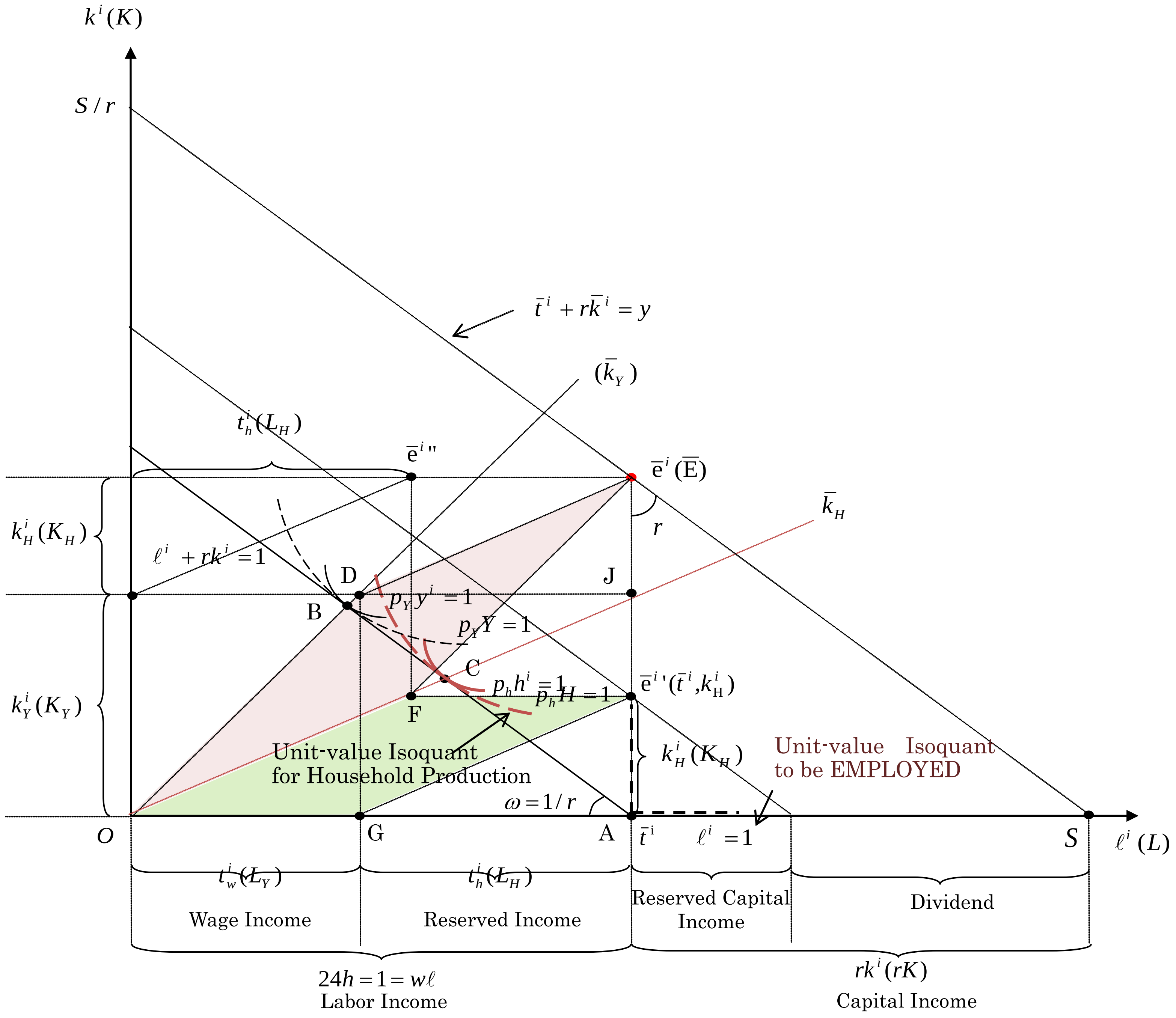
名古屋大学事務方

*

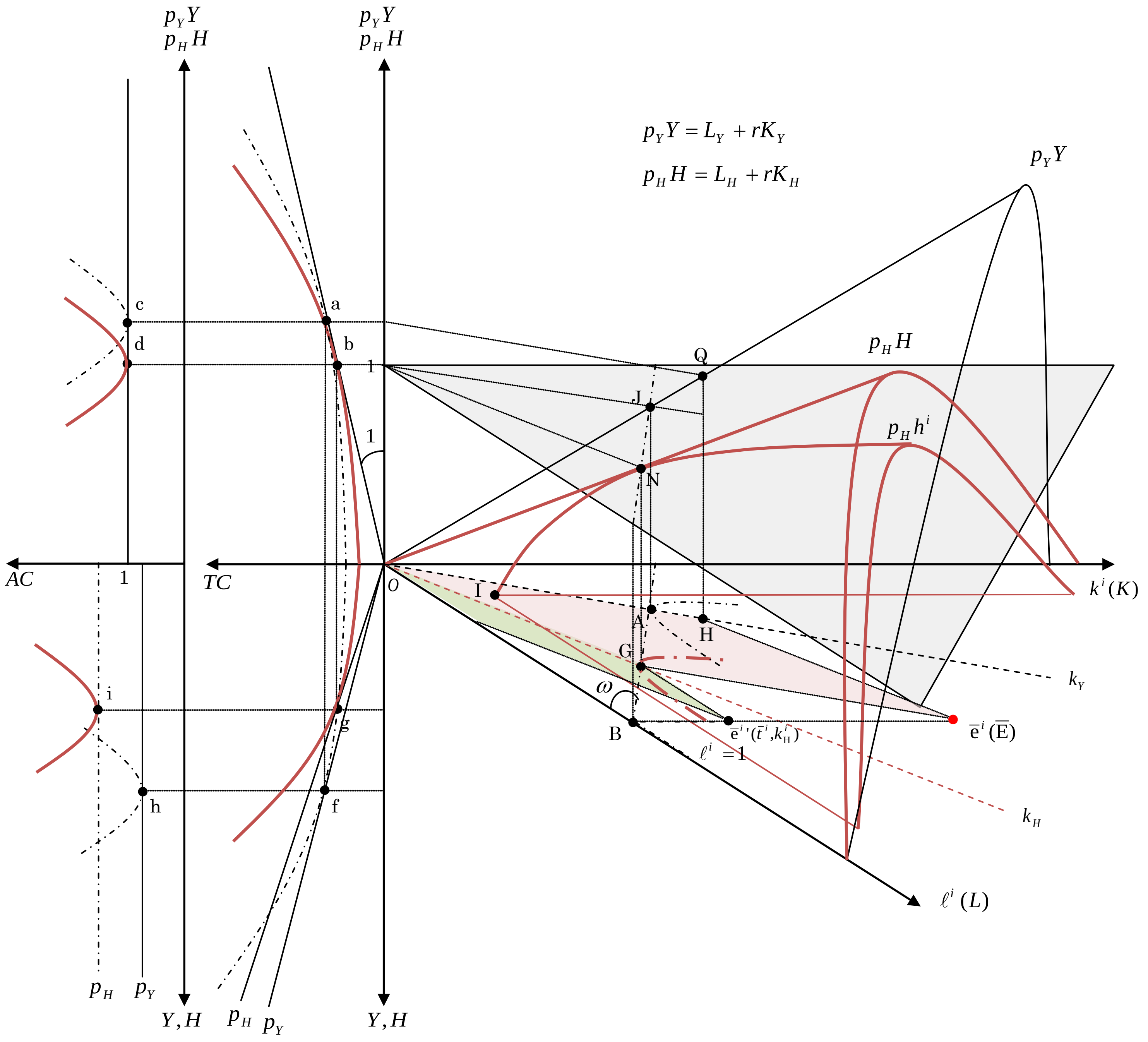
荒山桂次・荒山年恵・加藤保時・加藤静子

荒山久美・荒山倫子

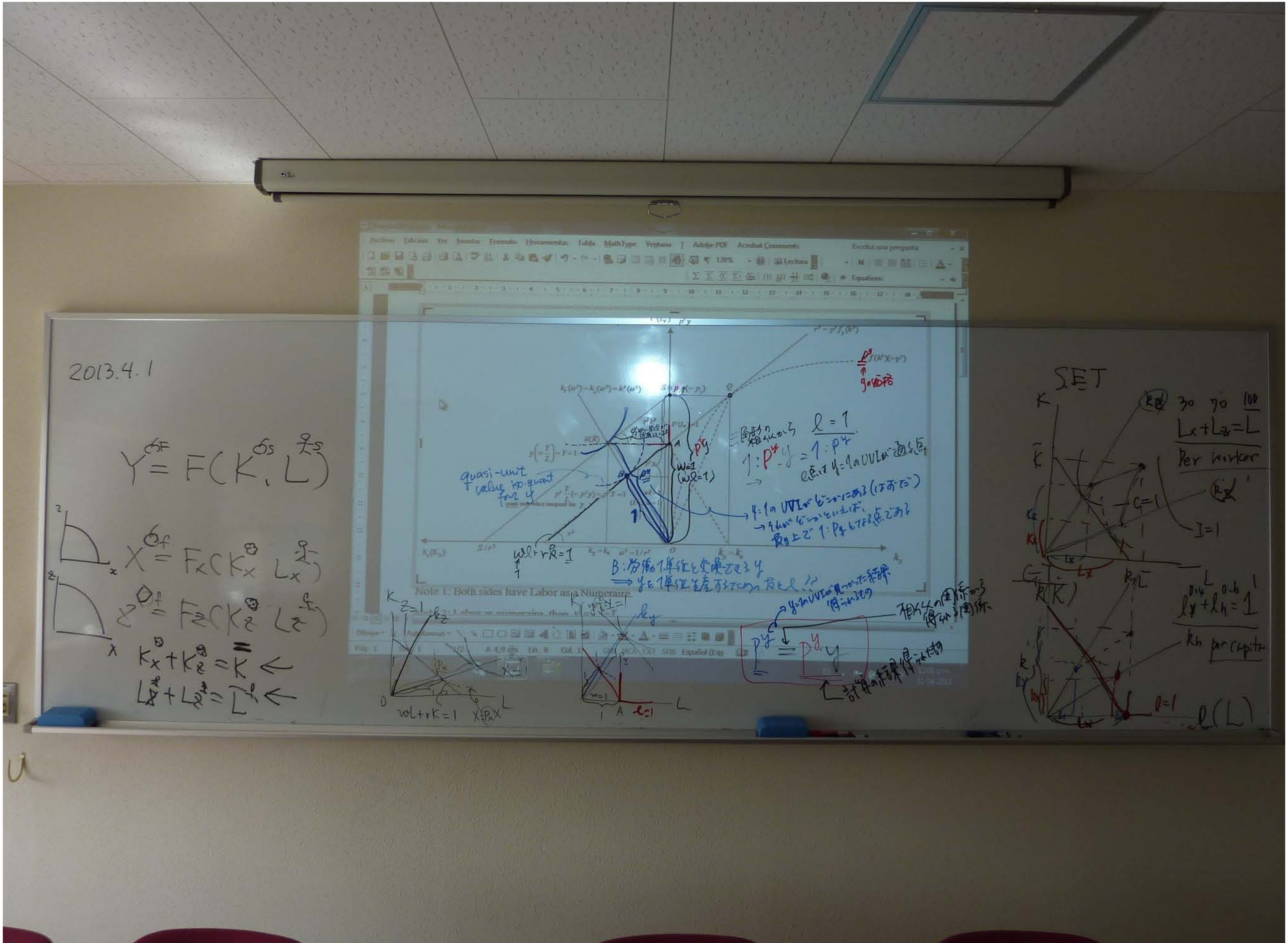


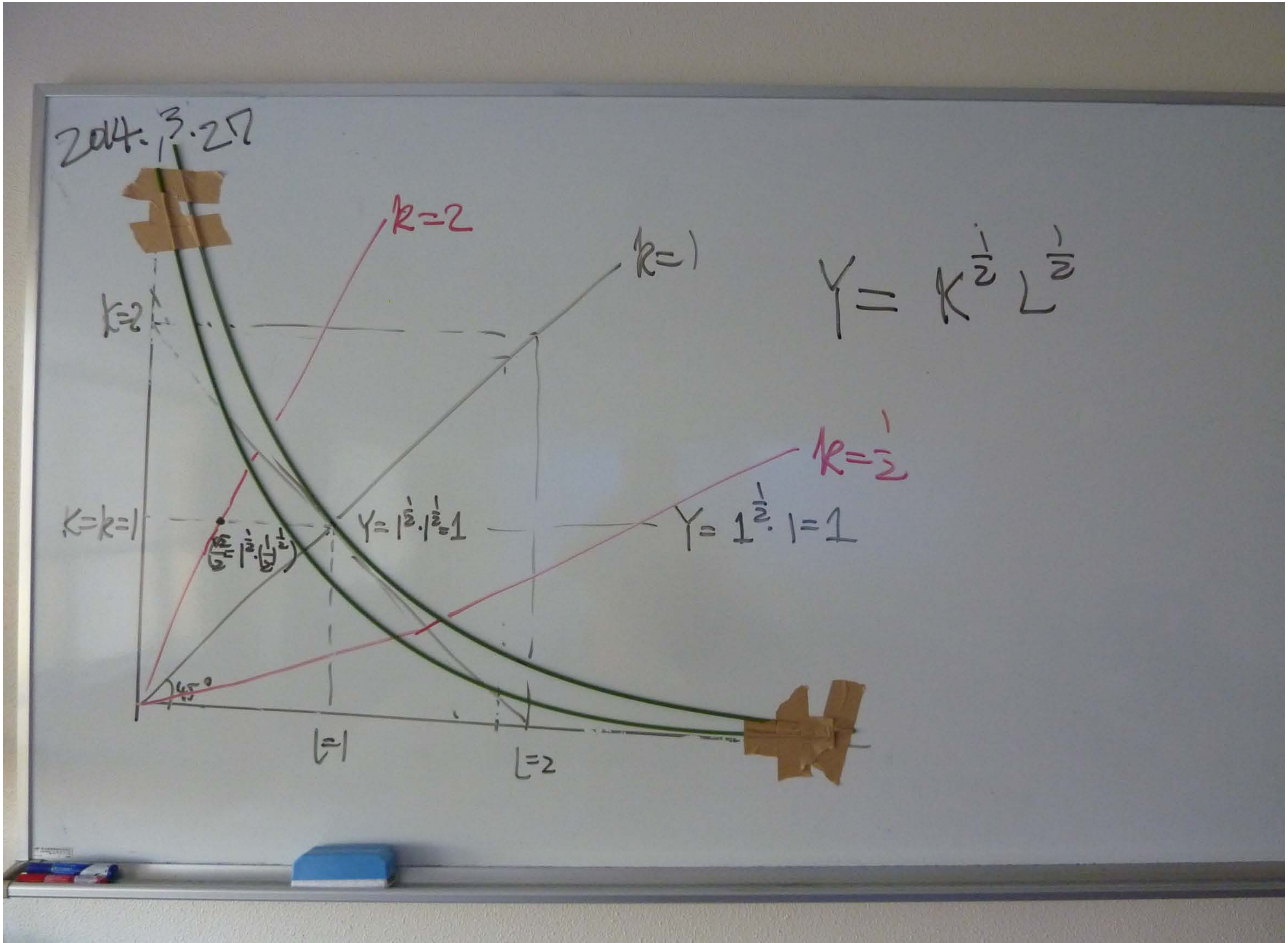


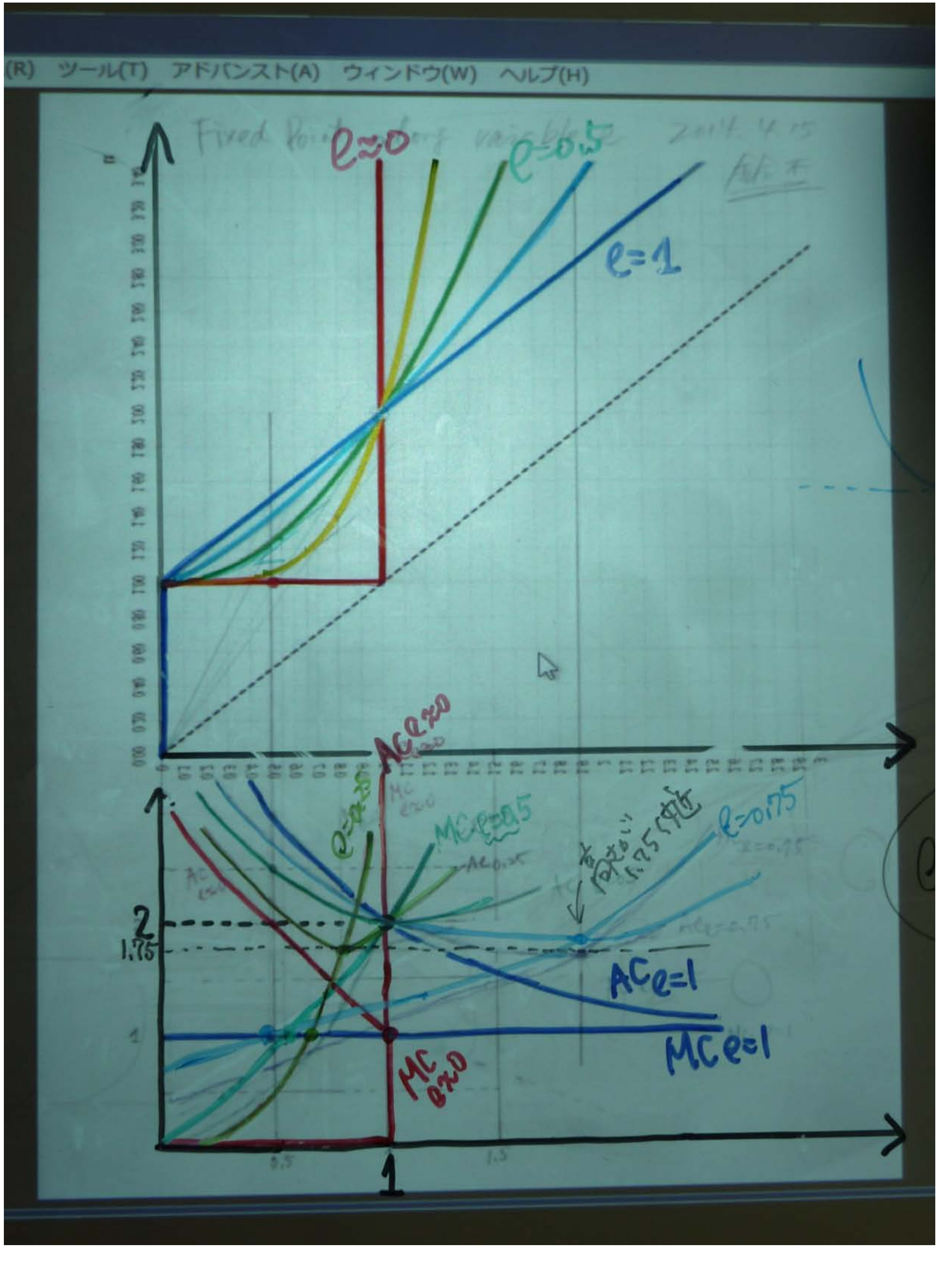
$k^i(K)$
S/r
$\bar{t}^i + r\bar{k}^i = y$
$(\bar{k}_Y)$
$t_h^i(L_H)$
$\bar{e}^i$"
$\bar{e}^i(\bar{E})$
$\bar{k}_H$
r
$k_H^i(K_H)$
$\ell^i + rk^i = 1$
D
J
B
$p_Y y^i = 1$
$p_Y Y = 1$
C
$p_h h^i = 1$
$p_h H = 1$
$\bar{e}^i{}'(\bar{t}^i, k_H^i)$
$k_Y^i(K_Y)$
F
Unit-value Isoquant
for Household Production
$k_H^i(K_H)$
Unit-value Isoquant
to be EMPLOYED
$\omega = 1/r$
O
G
A
$\bar{t}^i$
$\ell^i = 1$
S
$\ell^i(L)$
$t_w^i(L_Y)$
$t_h^i(L_H)$
Reserved Capital
Income
Dividend
Wage Income
Reserved Income
$24h = 1 = w\ell$
Labor Income
$rk^i(rK)$
Capital Income

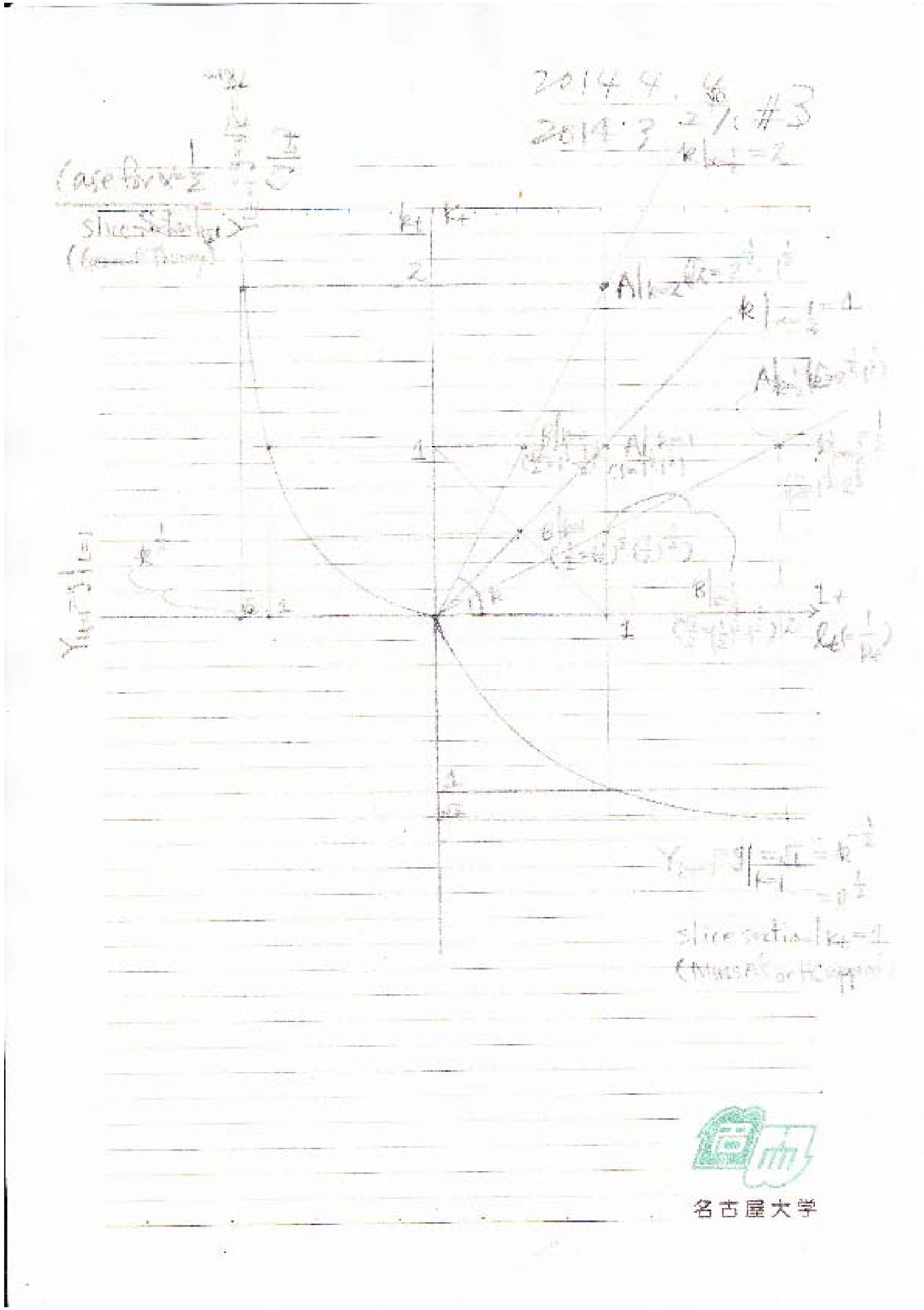


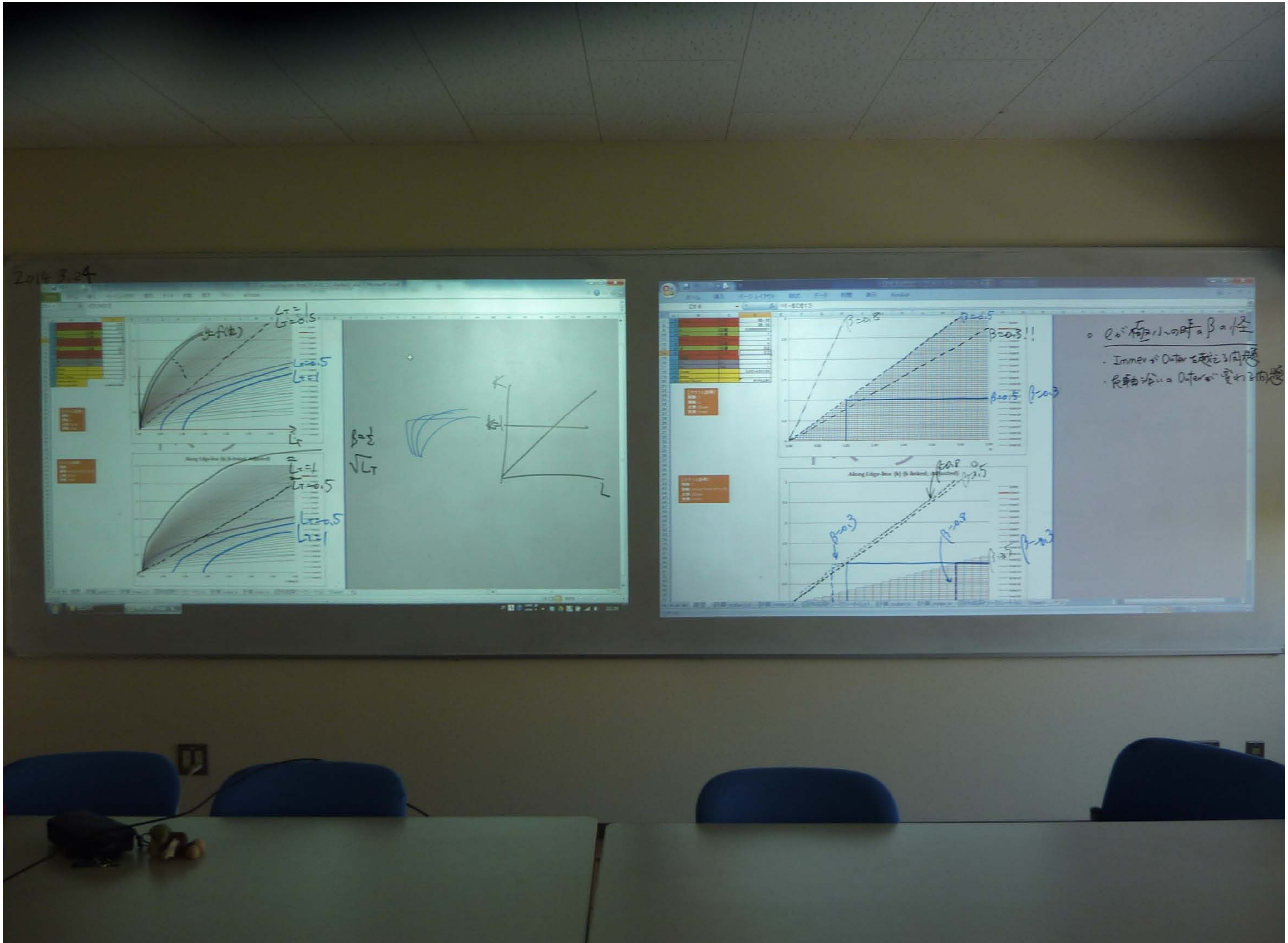
$p_Y Y$
$p_H H$
$p_Y Y = L_Y + rK_Y$
$p_H H = L_H + rK_H$
$p_Y Y$
$p_H H$
$p_H h^i$
c
a
d
b
1
1
Q
J
N
AC
1
TC
0
I
A
H
G
ω
B
$k^i(K)$
k_Y
$\bar{e}^i{}'(\bar{\ell}^i, k_H^i)$
$\bar{e}^i(\bar{E})$
$\ell^i = 1$
k_H
i
g
h
f
$\ell^i(L)$
p_H
p_Y
Y,H
p_H
p_Y
Y,H

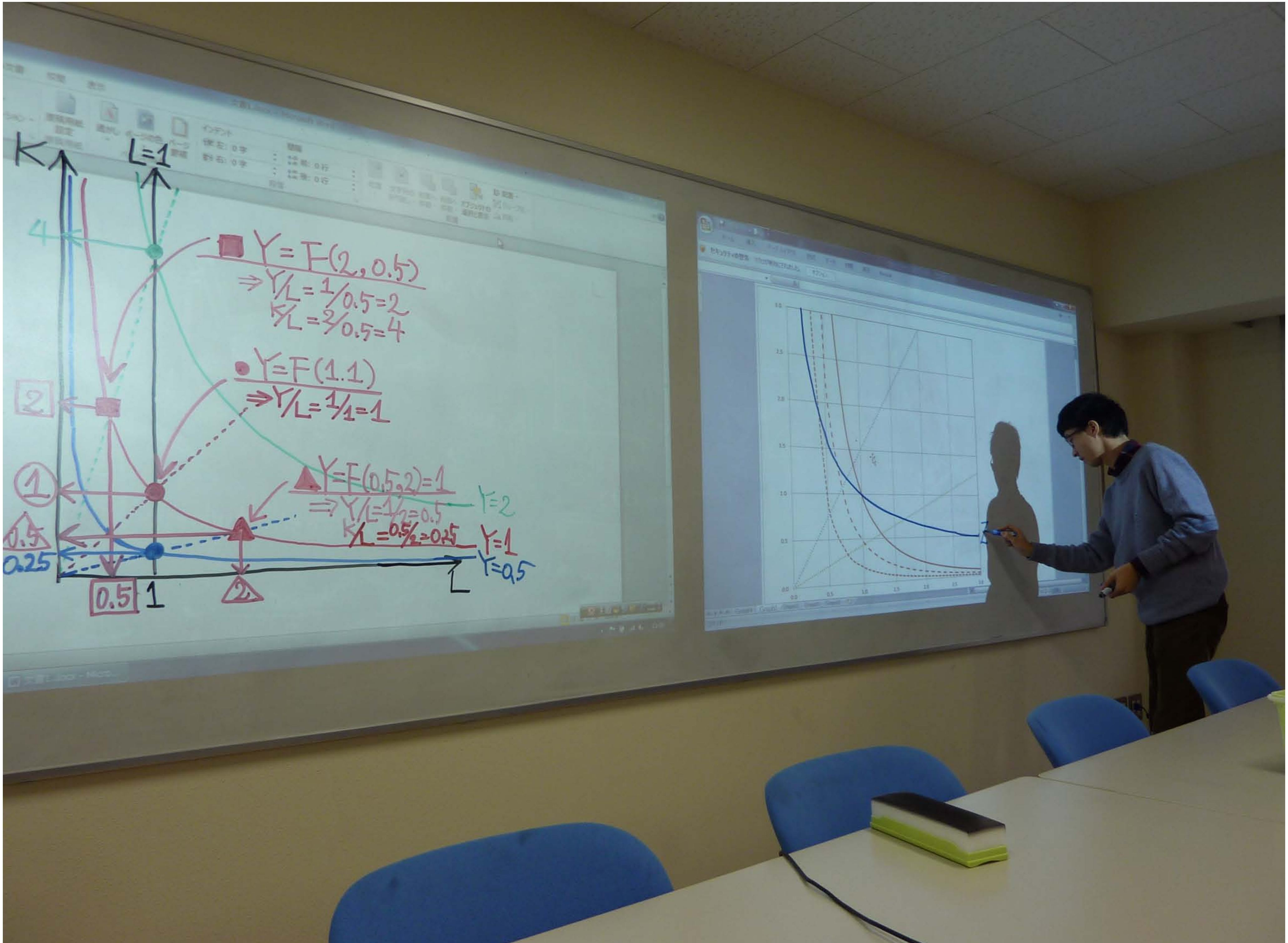

2013.4.1
SET
Note 1: Both sides have Labor as a Numeraire.
quasi-unit value iso-quant
Per worker
per capita

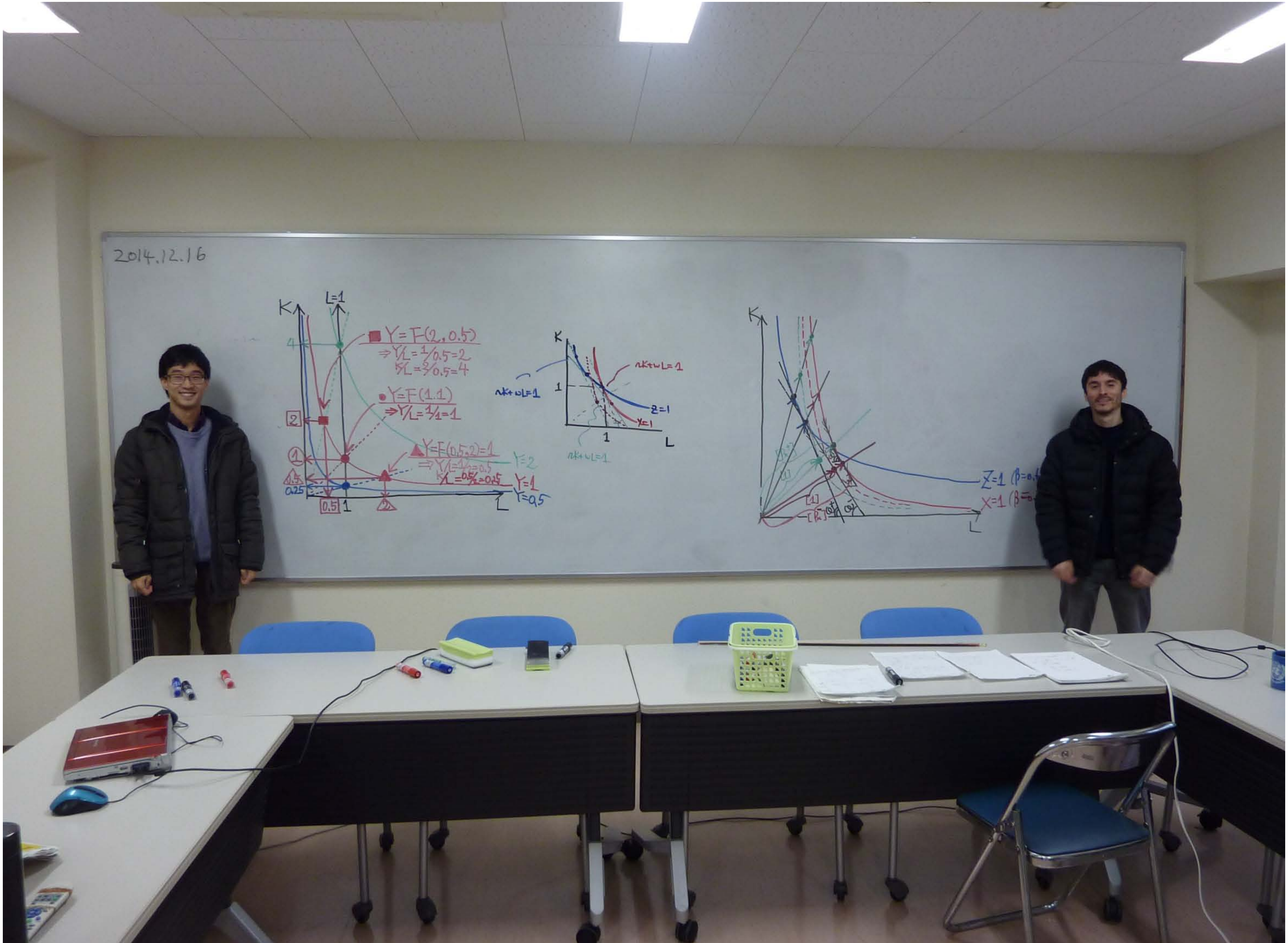

2014.3.27
k=2
k=1
Y= K^1/2 L^1/2
k=1/2
K=2
K=k=1
Y=1^1/2・1^1/2=1
Y= 1^1/2・1=1
45°
L=1
L=2

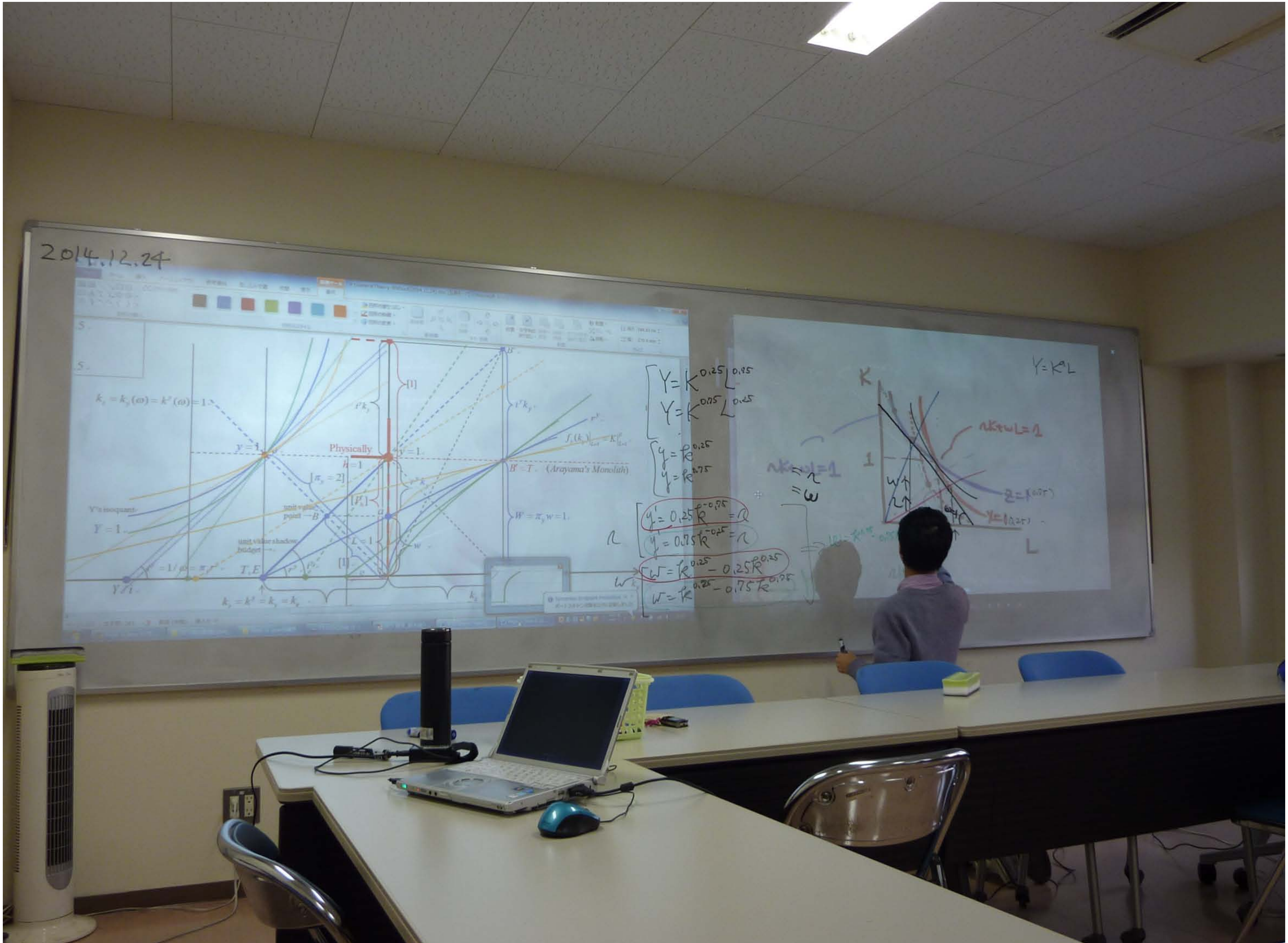

ツール(T)　アドバンスト(A)　ウィンドウ(W)　ヘルプ(H)
Fixed Point
e≈0
e=0.5
e=1
AC e≈0
MC e≈0
MC e=0.5
AC e=1
MC e=1
e=0.75
2
1.75
1

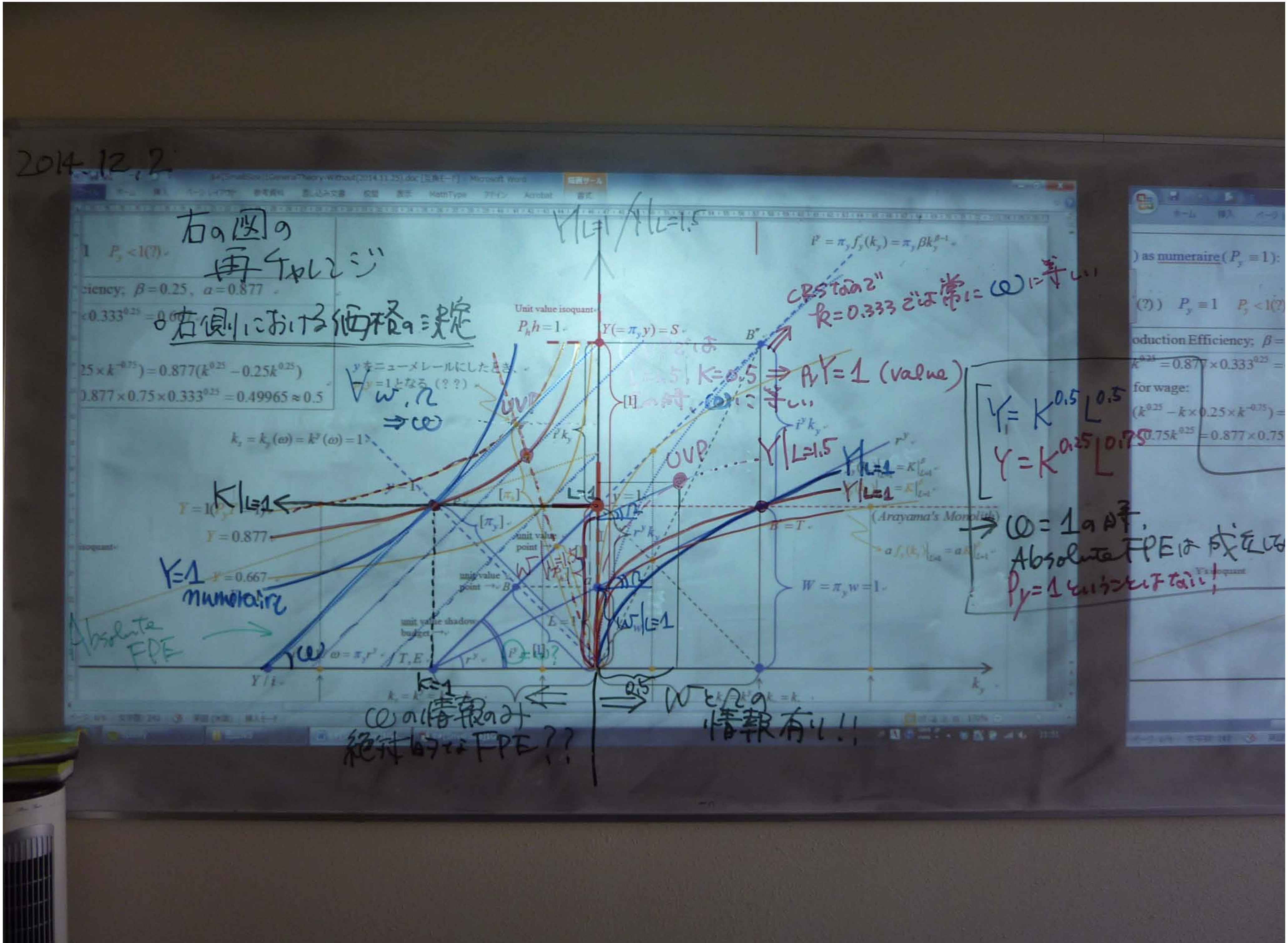


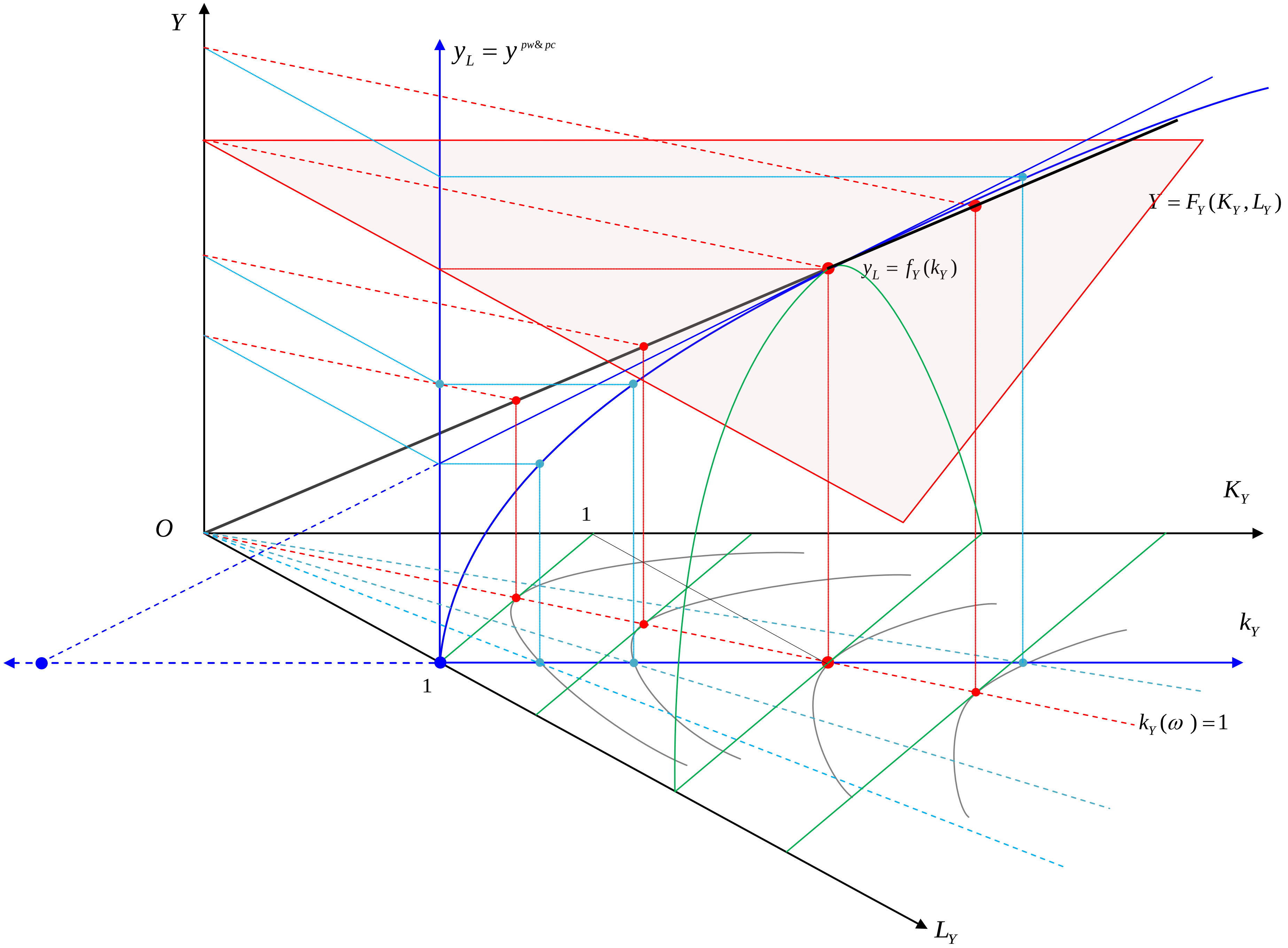



K
L=1
Y=F(2,0.5)
⇒Y/L=1/0.5=2
K/L=2/0.5=4
Y=F(1.1)
⇒Y/L=1/1=1
Y=F(0.5,2)=1
Y=2
Y=1
Y=0.5
0.25
0.5
1
2
4
L


2014.12.16
K
L=1
Y=F(2,0.5)
⇒Y/L=1/0.5=2
K/L=2/0.5=4
Y=F(1,1)
⇒Y/L=1/1=1
Y=F(0.5,2)=1
Y=2
Y=1
Y=0.5
0.25
0.5
L
rK+wL=1
Z=1
X=1


2014.12.24
Physically
(Arayama's Monolith)
Y's isoquant
unit value shadow budget
Y=K^0.25 L^0.75
Y=K^0.75 L^0.25
Y=K^a L

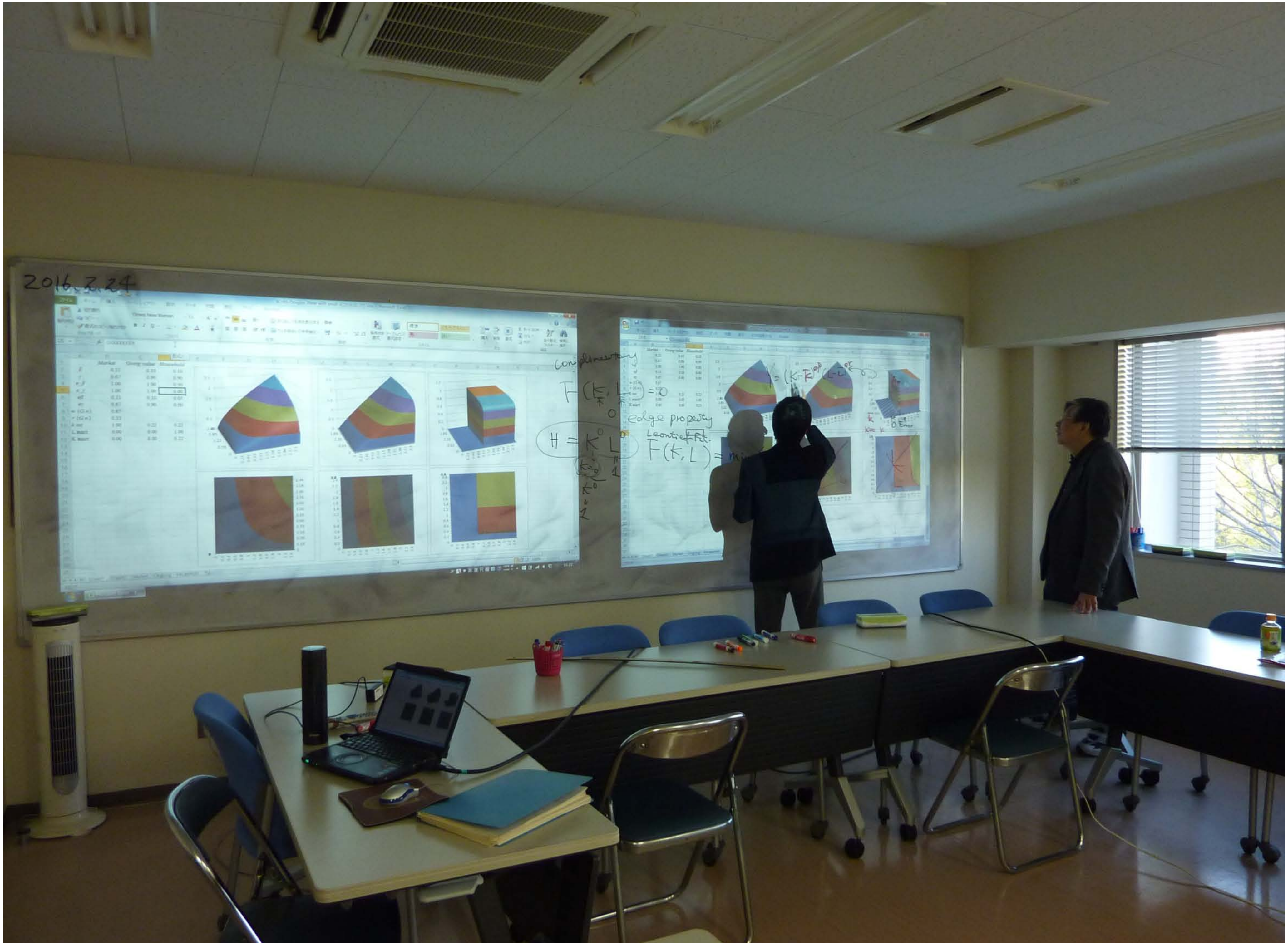

2014.12.2
右の図の
再チャレンジ
右側における価格の決定
CRSなので
k=0.333では常に ω に等しい
A Y=1 (value)
$Y = K^{0.5} L^{0.5}$
$Y = K^{0.25} L^{0.75}$
ω=1の時，
Absolute FPEは成立
$P_y=1$ということはない！
Y=1
numeraire
Absolute FPE
K|L=1
Y|L=1.5
Y|L=1
UVP
OVP
k=1
0.5
ωの情報のみ
絶対的なFPE??
w とr の情報有り！！
Unit value isoquant
$P_h h=1$
$Y(=\pi_y y)=S$
$W=\pi_y w=1$
Y = 0.877
Y = 0.667
(Arayama's Monolith)

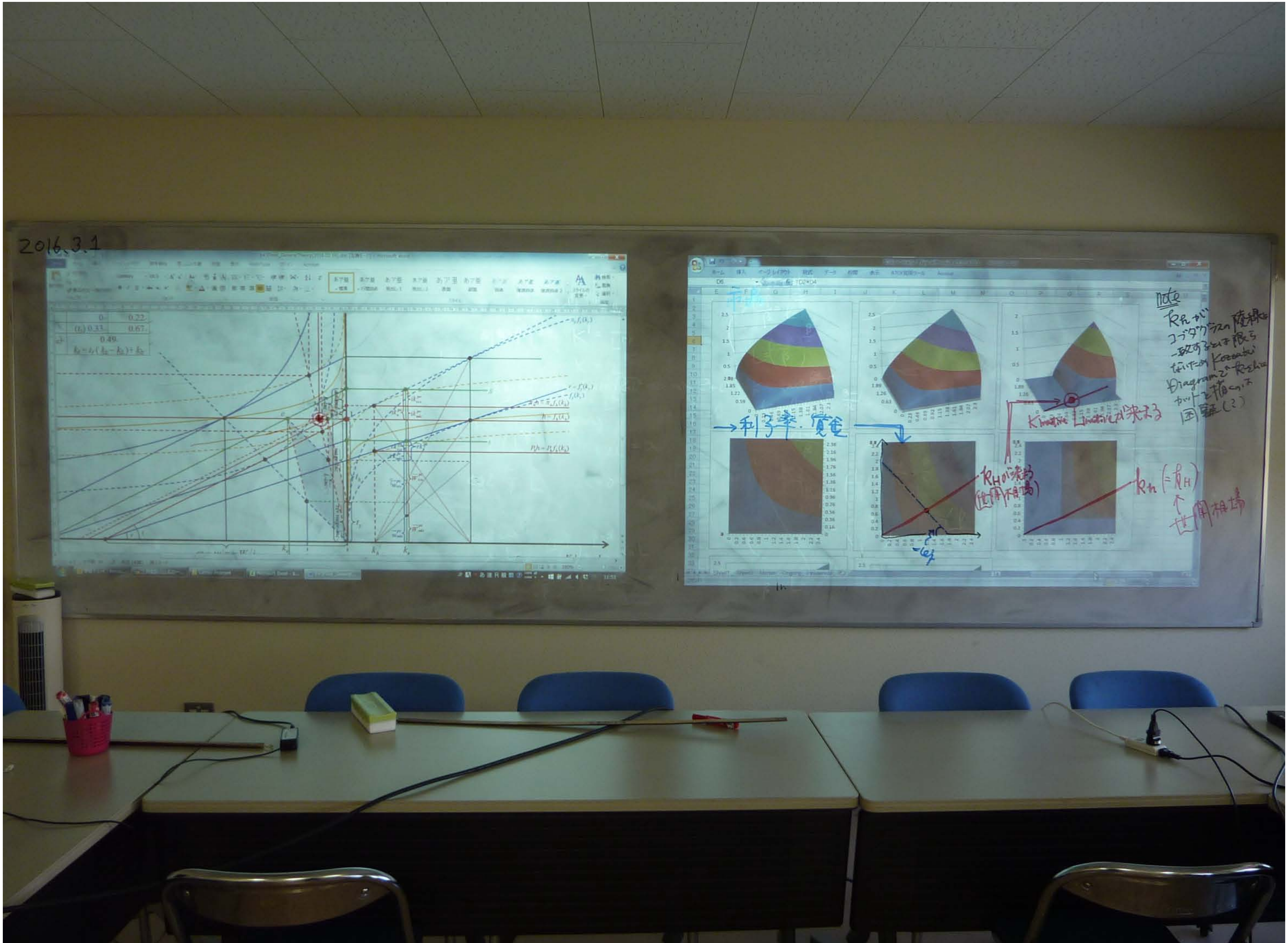

Y
$y_L = y^{pw\&pc}$
$Y = F_Y(K_Y, L_Y)$
$y_L = f_Y(k_Y)$
K_Y
1
O
k_Y
1
$k_Y(\omega)=1$
L_Y


2015.10.13
note
Neoclassical
(Arayama's Monolith)
Slice


2016. 1.5


$M = p_1 x_1 + x_2$
ΔM
Δx_2
Δx_1
$IC|_{x_1 \& x_2}$
$IC|_{x_1 \& M}$
constant
marginal utility
for $1
(and, of income)


edge property


2016.3.1
利子率・賃金
note


SOCIAL SCIENCE
RESEARCH