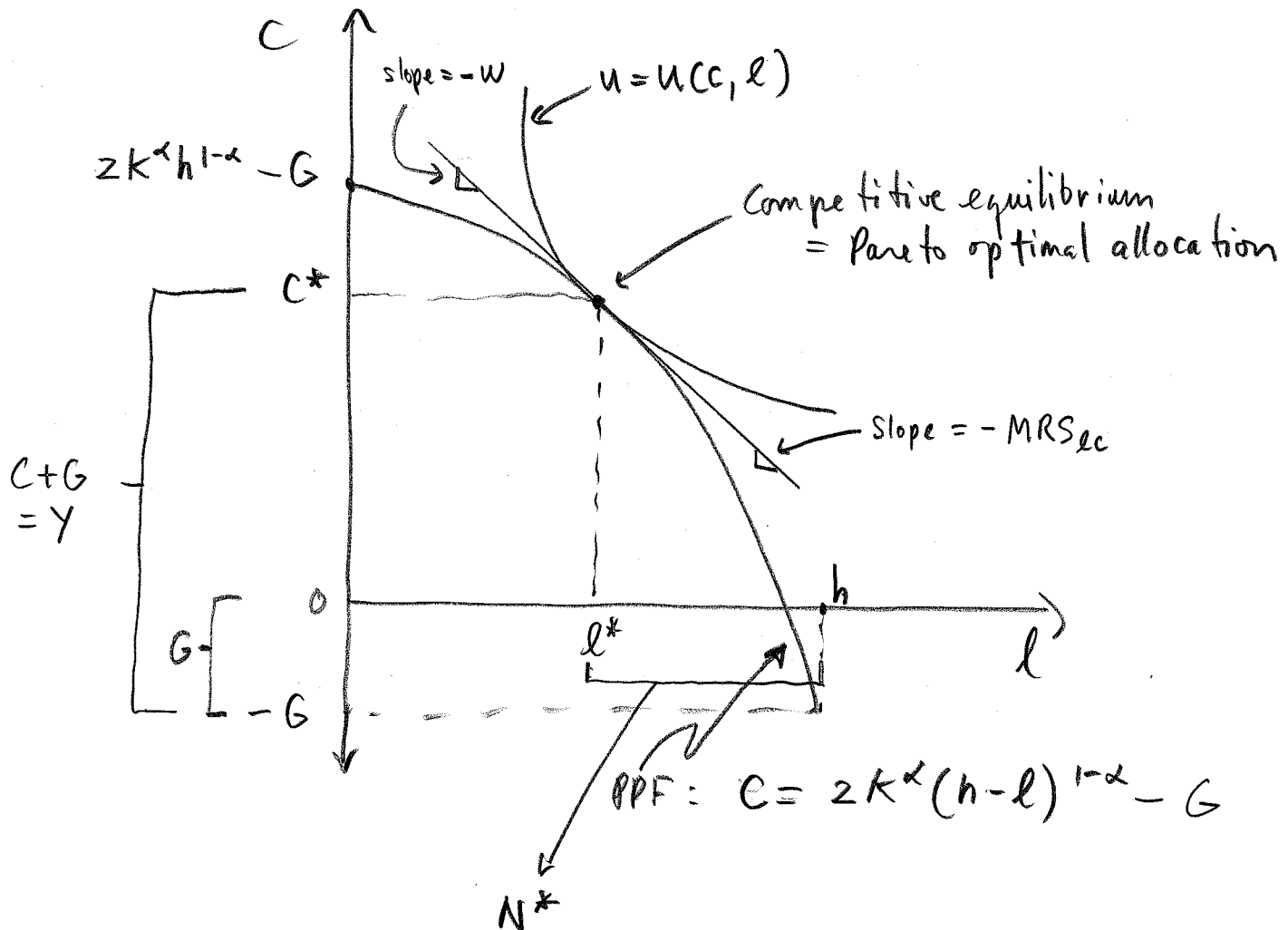


Predictions of the model

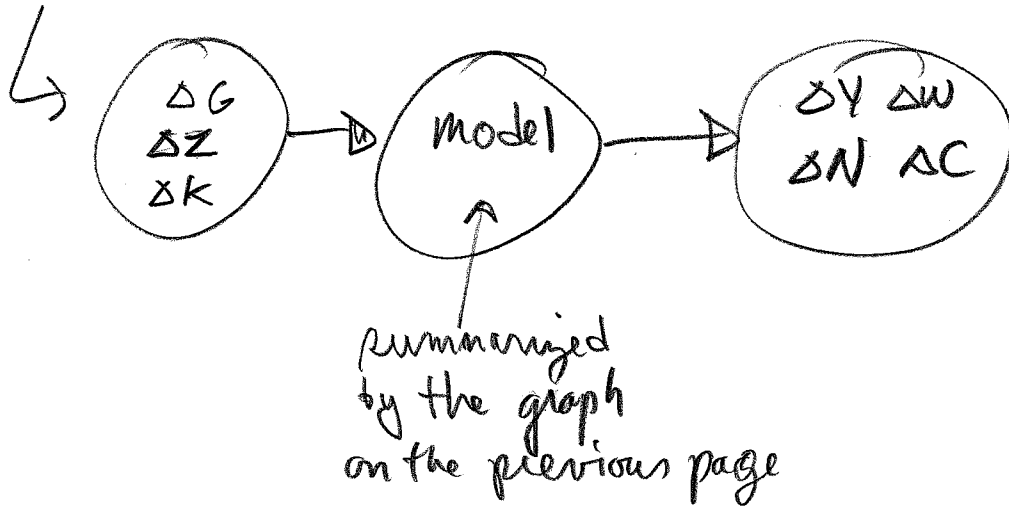
This graph can be used to describe the equilibrium of our one-period economy:



\therefore movements in this graph from one equilibrium to the other can be used to determine the model's predictions when G changes, z changes, or K changes (changes in exogenous variables)

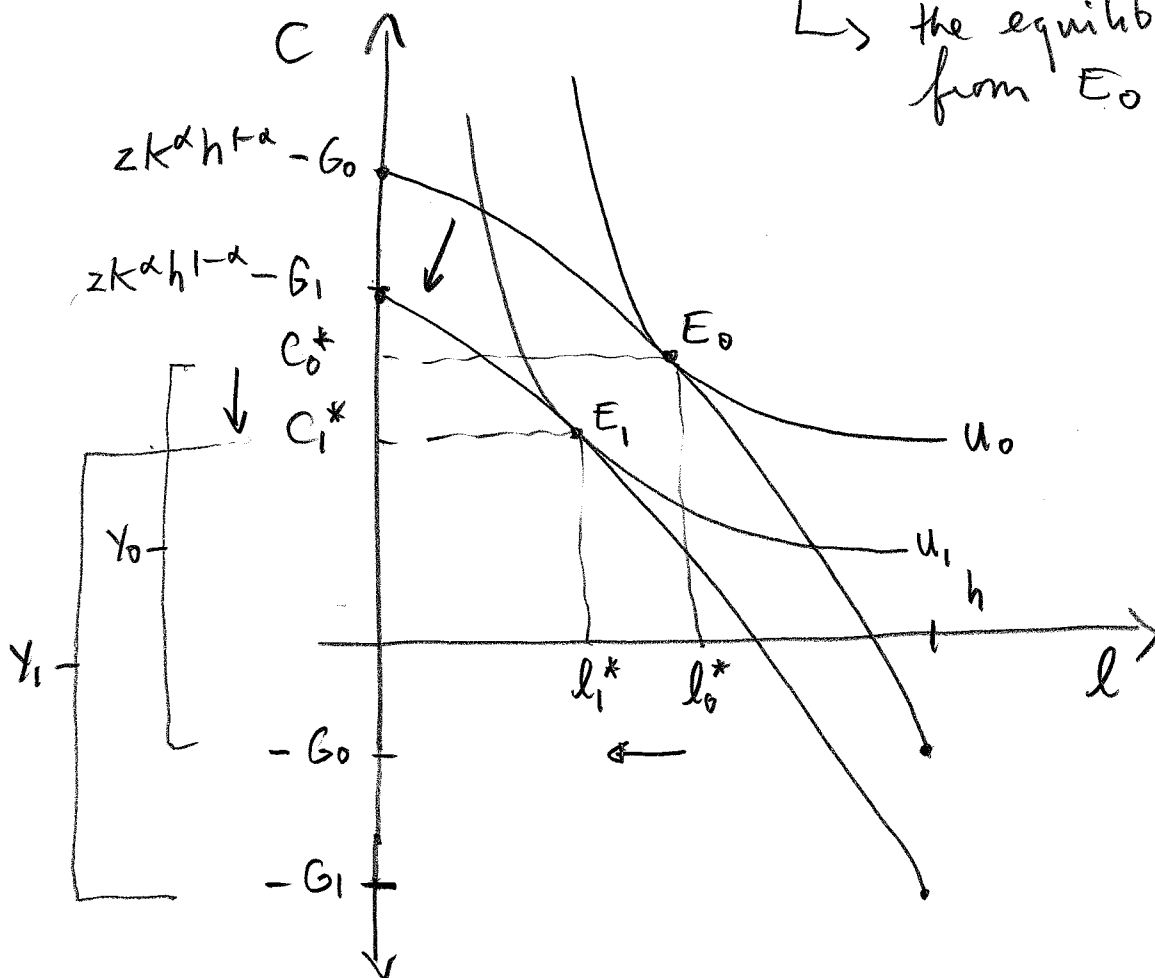
2

That is, we can look at this graph to determine $\Delta Y, \Delta N, \Delta W, \Delta C$ following a $\Delta G, \Delta Z, \Delta K$



1) ΔG : Suppose $G \uparrow$ from G_0 to G_1

\hookrightarrow the equilibrium moves from E_0 to E_1



(3)

notice what happens:

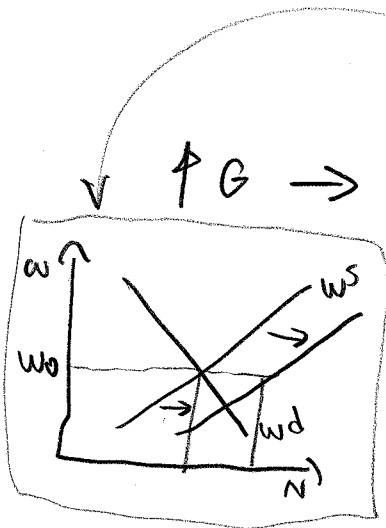
$$\uparrow G \rightarrow \underbrace{\downarrow \ell^* \text{ and } \downarrow C^*}_{\text{since } N = h - \ell} \rightarrow \uparrow N^*$$

$$\uparrow G \rightarrow \uparrow T \quad (T = G)$$

\therefore non labour income \downarrow

ie: pure income effect

(which causes $\downarrow \ell$ and $\downarrow C$
because ℓ and C are
normal goods)



$$\uparrow G \rightarrow \downarrow w$$

workers are ready to work more
at $w_0 \rightarrow w_1$ must be lower than w_0
(excess supply)

because $N^* \uparrow$ since $w = MPN$

(ie: $\uparrow N \rightarrow \downarrow MPN$)
(congestion effect)

$$\uparrow G \rightarrow \uparrow Y \quad (\Delta Y > 0)$$

because $N \uparrow$ and $Y = zK^\alpha N^{1-\alpha}$
(ie: $MPN > 0$)

$$\text{note: } C = Y - G$$

$$\Delta C = \Delta Y - \Delta G > -\Delta G \quad (\text{since } \Delta Y > 0)$$

$$\text{ie: } \Delta C > -\Delta G$$

ie: consumption
falls by less
than ΔG
because $N \uparrow$

$$\text{ex: } \Delta G = 5$$

$$\Delta C = -4 \text{ say}$$

essentially, $\uparrow N \rightarrow \uparrow Y$ (income) to pay the $\uparrow T$ in part

4

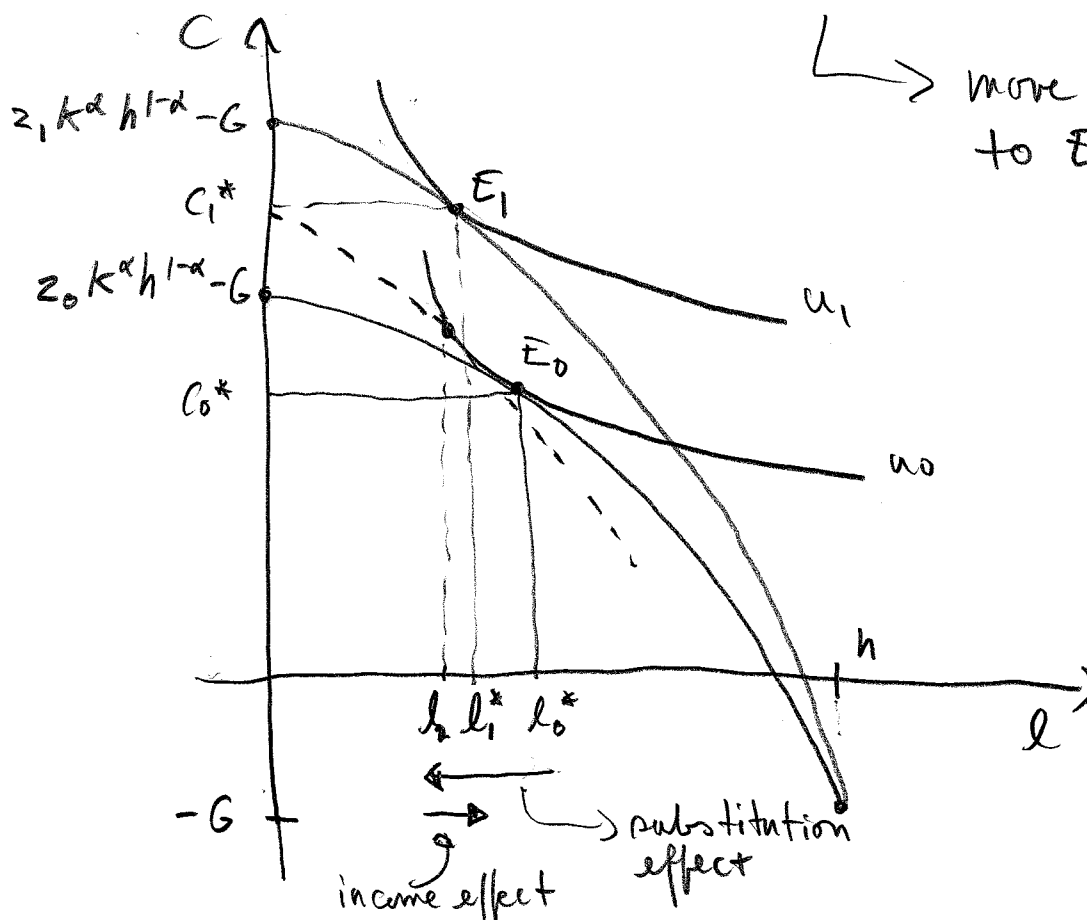
also note: $\uparrow G \rightarrow \downarrow u$

\hookrightarrow Welfare decreases because $\uparrow G$ leads to higher taxes (T) but consumers do not value government spending (ie G is not part of their utility function)

$\therefore \uparrow G \rightarrow \begin{pmatrix} \downarrow C \\ \uparrow N \\ \uparrow W \\ \downarrow u \\ \uparrow Y \end{pmatrix}$ model's predictions

2) $\uparrow Z$ (more output is produced with the same levels of K and N)
from z_0 to z_1

\hookrightarrow note: $\uparrow K$ would have the same effect here (but not the same interpretation)



\hookrightarrow move from E_0 to E_1

(5)

$$\rightarrow \uparrow z \rightarrow \uparrow C^* \downarrow l^* (\because \uparrow N^*)$$

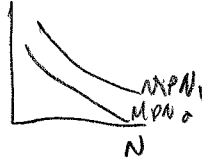
\swarrow for sure \searrow uncertain

but this depends on the relative strength of the income and substitution effects

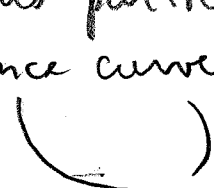

from l_2 to l_1^*

$\uparrow z \rightarrow \uparrow Y$ without any Δ in N
 $\therefore Y$ could be maintained at Y_0 if N is decreased
 \Rightarrow incentives to $\uparrow l$ (income effect)

from l_0^* to l_2

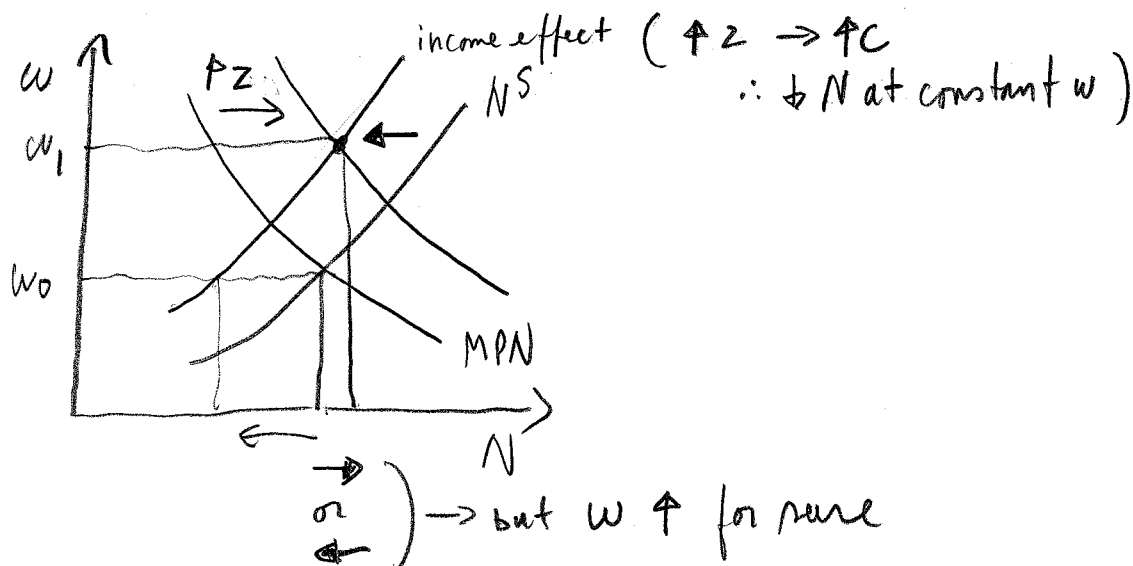
$\uparrow z \rightarrow \uparrow MPN$


 $\therefore \uparrow w$ ($w = MPN$)
 \hookrightarrow This makes leisure more expensive
 \Rightarrow incentive to $\downarrow l$ (substitution effect)

\hookrightarrow net effect is l_0^* to l_1^* because the substitution effect is stronger than the income effect in this particular example
 (need indifference curves with shape  rather than )

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$\rightarrow \uparrow z \rightarrow \uparrow w$ [regardless of whether or not $N \uparrow$ or \downarrow]
 $\rightarrow MPN \neq$ when $z \uparrow$



$\rightarrow \uparrow z \rightarrow \uparrow u$
 (can consume more with the same l (l_0)
 because $Y \uparrow$ even if N does not change)
 (more output with same effort)
 " consumption

$\therefore \uparrow z \rightarrow \uparrow C \quad \downarrow \uparrow N \text{ (ambiguous)}$
 $\quad \uparrow Y \quad \uparrow u \quad \uparrow w$

model's predictions

7

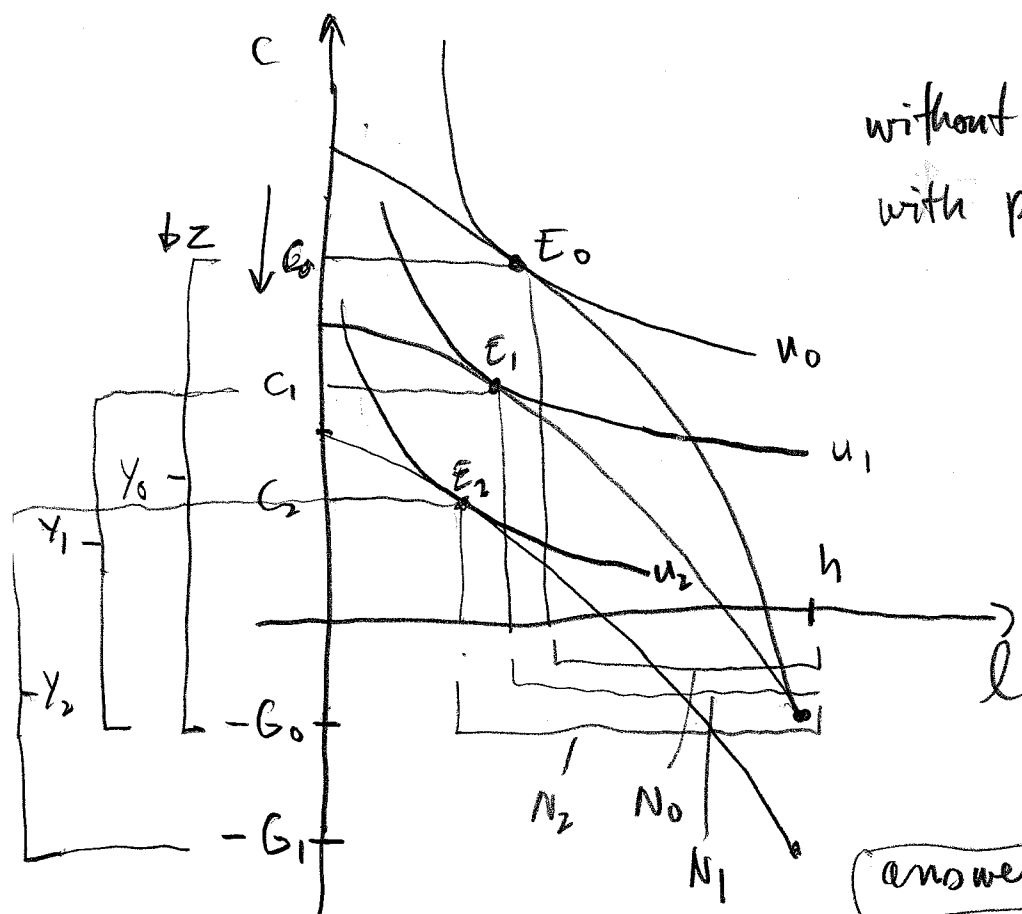
One question we could ask in our model is:

Suppose there is a recession, should the government $\uparrow G$ in this case (since $\uparrow G \rightarrow \uparrow Y$)

↳ common idea that the government should "fight" a recession with more spending

→ Suppose there is a recession because $\downarrow z$
(this is one possible source of recession in our model, another is $\downarrow K$ following a natural disaster)

↳ recession must happen for a reason consistent with the model
ie: it has to come from Δz , ΔK , or ΔG



without policy: $E_0 \rightarrow E_1$
with policy: $E_0 \rightarrow E_2$

$Y_2 > Y_1$ ($N_2 > N_1$)

but $u_2 < u_1$

people work harder for a smaller "w"

(both $\downarrow z$ and $\downarrow G \Rightarrow \downarrow w$)

answer: goal $\uparrow u$ not $\uparrow Y$