Consumption & Investment

K Ch.26

조남운
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Outline

- Consumption Spending
- Investment Spending
- Income-Spending Model

Consumption Spending

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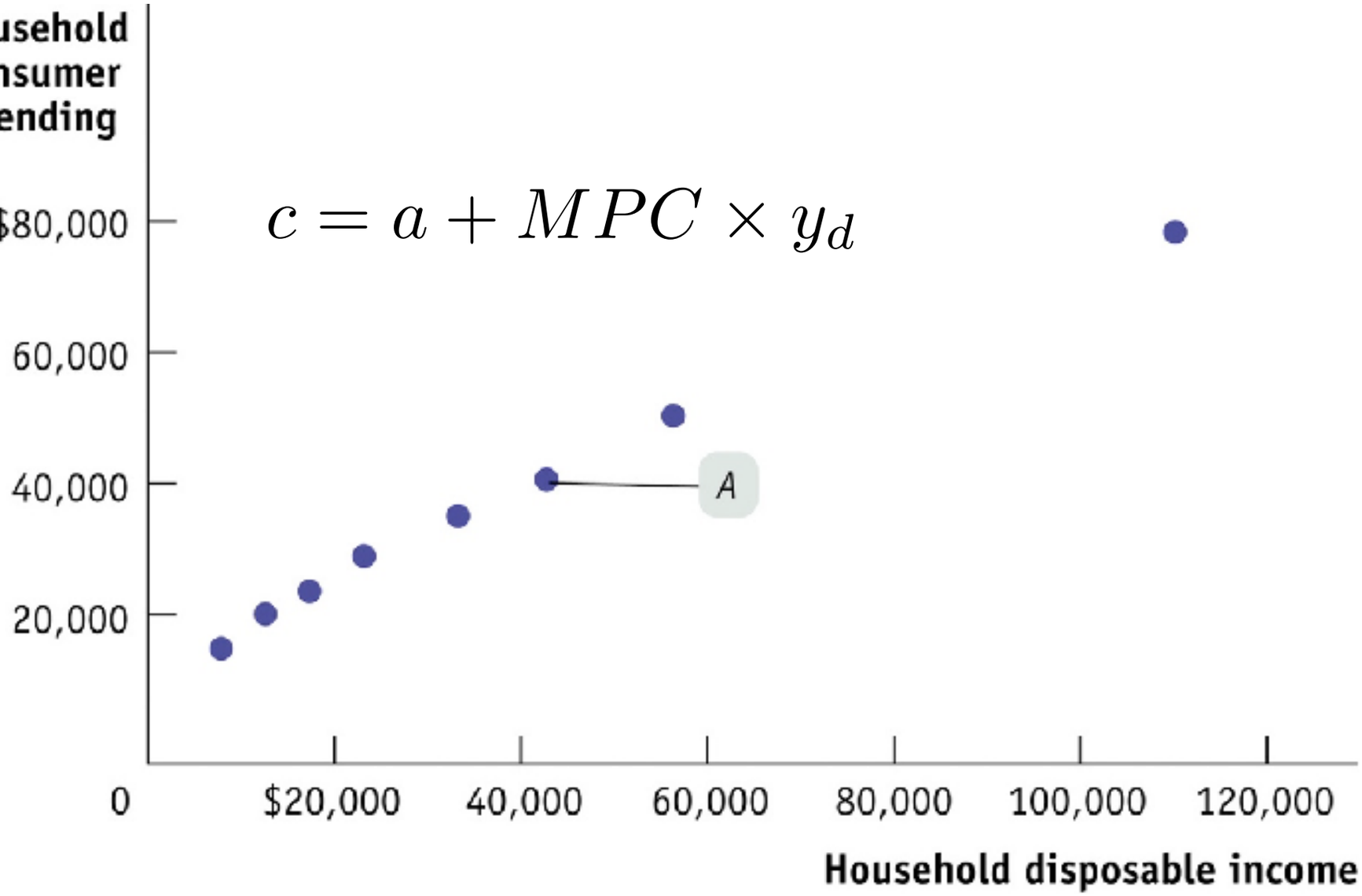
소비지출
Consumption Spending

- 미국의 소비지출 (C): 최종생산물 총지출의 2/3
  - 통상 지출기준 rGDP에서 가장 많은 비중을 차지
- Q: 소비자의 지출결정요인은 무엇인가?

가처분소득과 소비지출

Disposable income and Consumption Spending

$$c = a + MPC \times y_d$$



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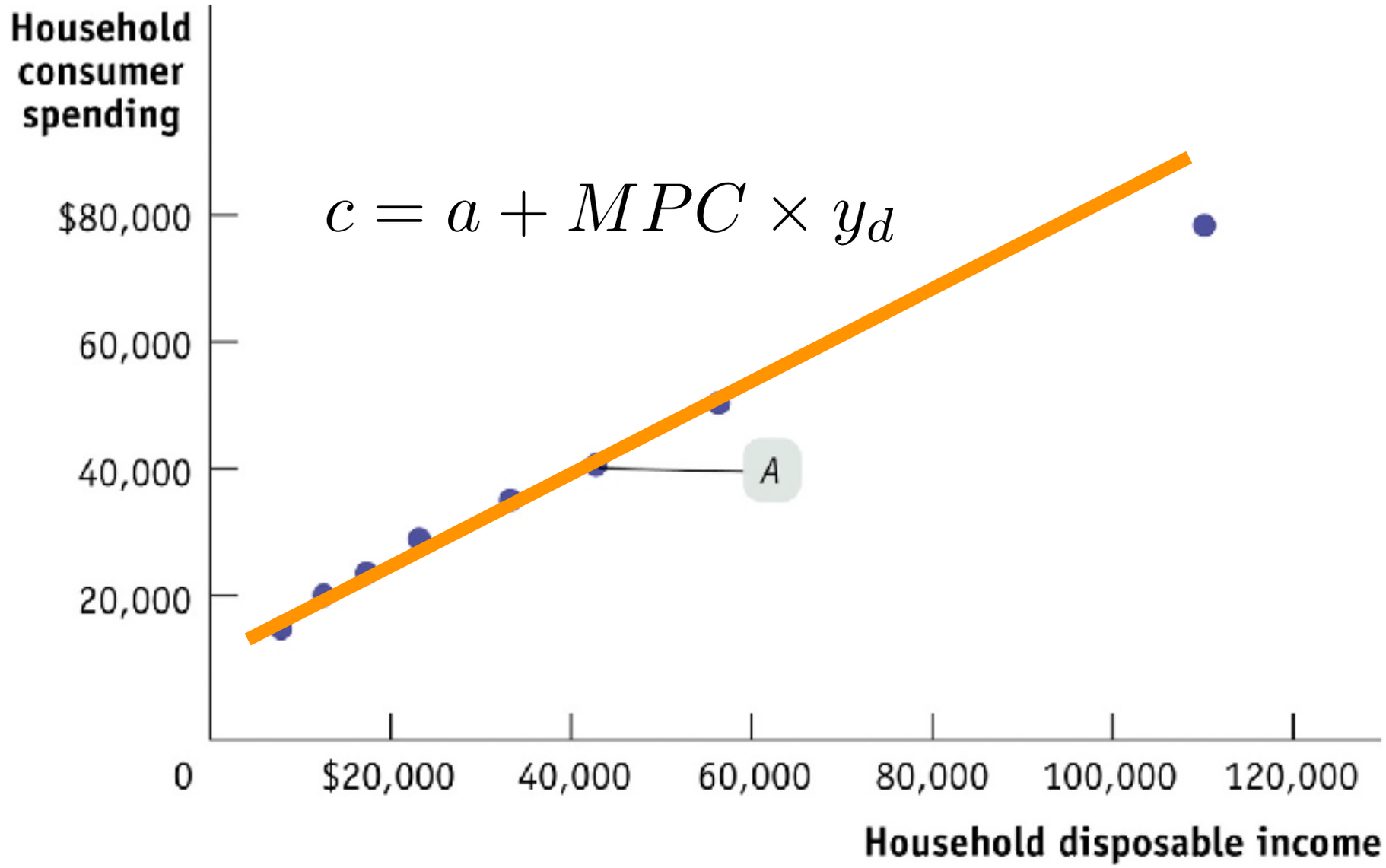
가처분소득과 소비지출

Disposable income and Consumption Spending

$$c = a + MPC \times y_d$$



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Consumption Function

$$c_i = a_i + MPC \times yd_i$$

- Ci: 개별가계 i의 소비지출
- ydi: 개별가계 i의 가처분소득
- MPC: 한계소비성향
  - 가계마다 다르다면 MPCi. 여기에서는 상수로 가정하고 있음
- ai>0: 개별가계 i의 독립 소비자 지출(Autonomous consumption spending)

독립 소비자 지출
Autonomous Consumption Spending

- a>0인 까닭
  - 어떻게 소득보다 더 많은 소비를 할 수 있나??
  - 소득은 유량(flow)이지만 소비는 소득뿐만 아니라 저량(stock)인 총 부(富, wealth)의 변수이기도 함.
  - 과거 저축, 차입(미래 저축) 등을 통해 소득이 0일때도 소비 가능

Consumption function

- by Definition, MPC := ⊿C / ⊿YD
- MPC ≡ [⊿C/N] / [⊿DY/N] = MPC ≡ ⊿c / ⊿yd
- C, DY : Aggregate Variables
- c, yd : (Average) Individual Variables

Aggregate Consumption Function

- 개별 소비함수를 모두 더하여 산출
- C := c1+c2+....+cN

$$\sum_i^N c_i = \sum_i^N a_i + MPC \times \sum_i^N y_{di}$$

$$C = A + MPC \times Y_D$$

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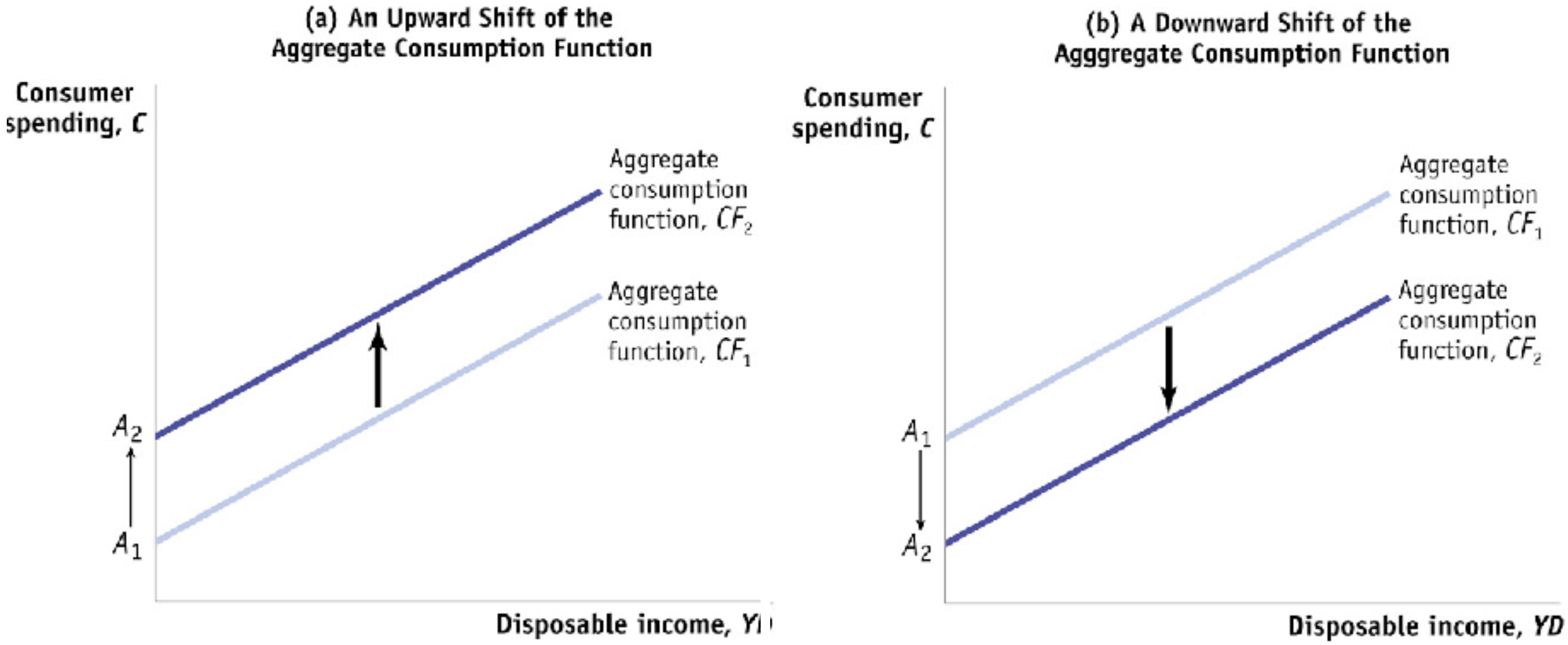
Movement of ACf cv.

- 총소비함수(ACf)는 [가처분소득(Yd)]과 [소비지출(C)] 사이의 함수
- Yd, C 이외의 변수가 변할 경우 ACf곡선 자체가 이동
  - 예상되는 미래 가처분소득의 변화: flow
  - 총재산 변화: stock

예상되는 미래 가처분소득의 변화
Change of Expected Future Dispensable Income

- (현재 가처분소득이 변함 없다 할지라도) 가처분소득에 대한 기대변화만으로도 소비지출에 영향을 미칠 수 있음.
  - ex1: 로또에 당첨되었지만, 아직 금액을 수령하지 않은 최씨는 친구들에게 술을 삼. (C↑)
  - ex2: 채산성 악화로 다니던 기업의 아웃소싱 계획이 발표되자 직원 김씨는 예전부터 사려고 했던 자가용 구매계획 보류. (C↓)

Movement of Cf cv.



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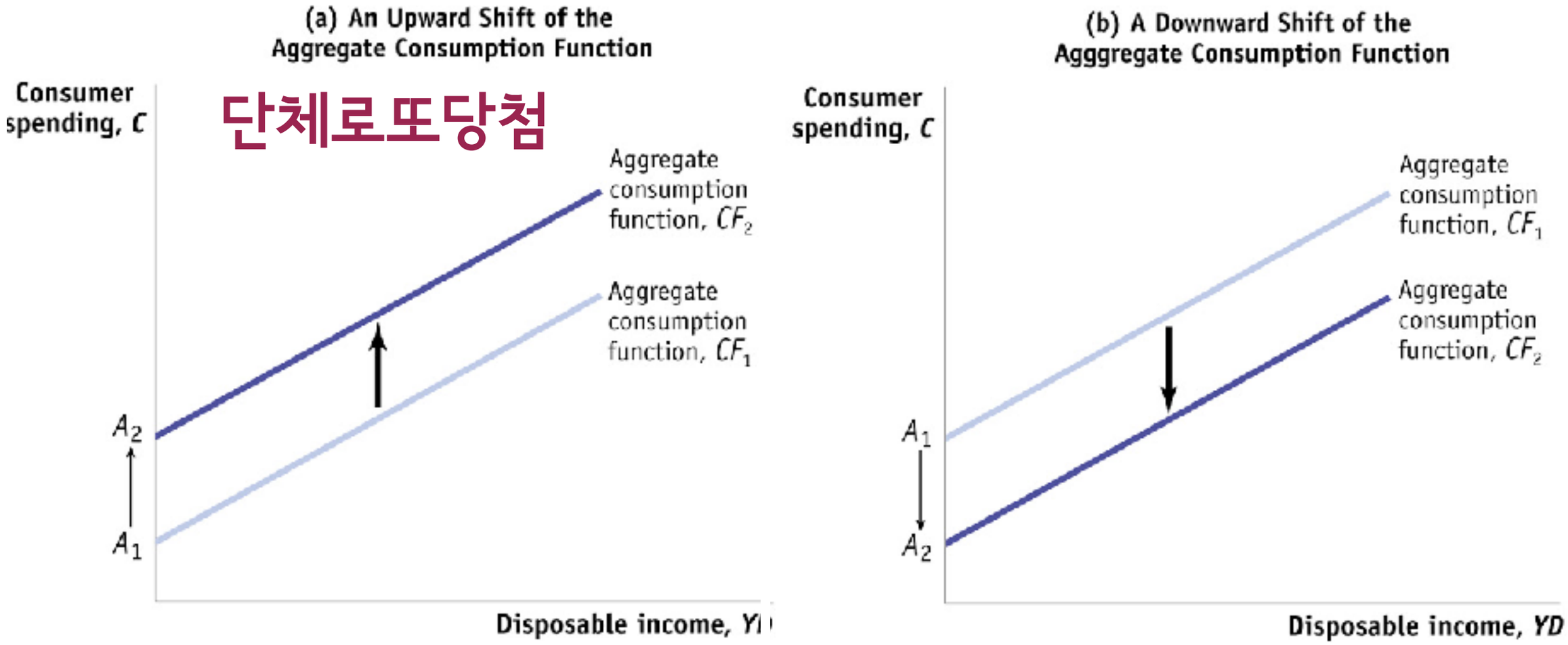

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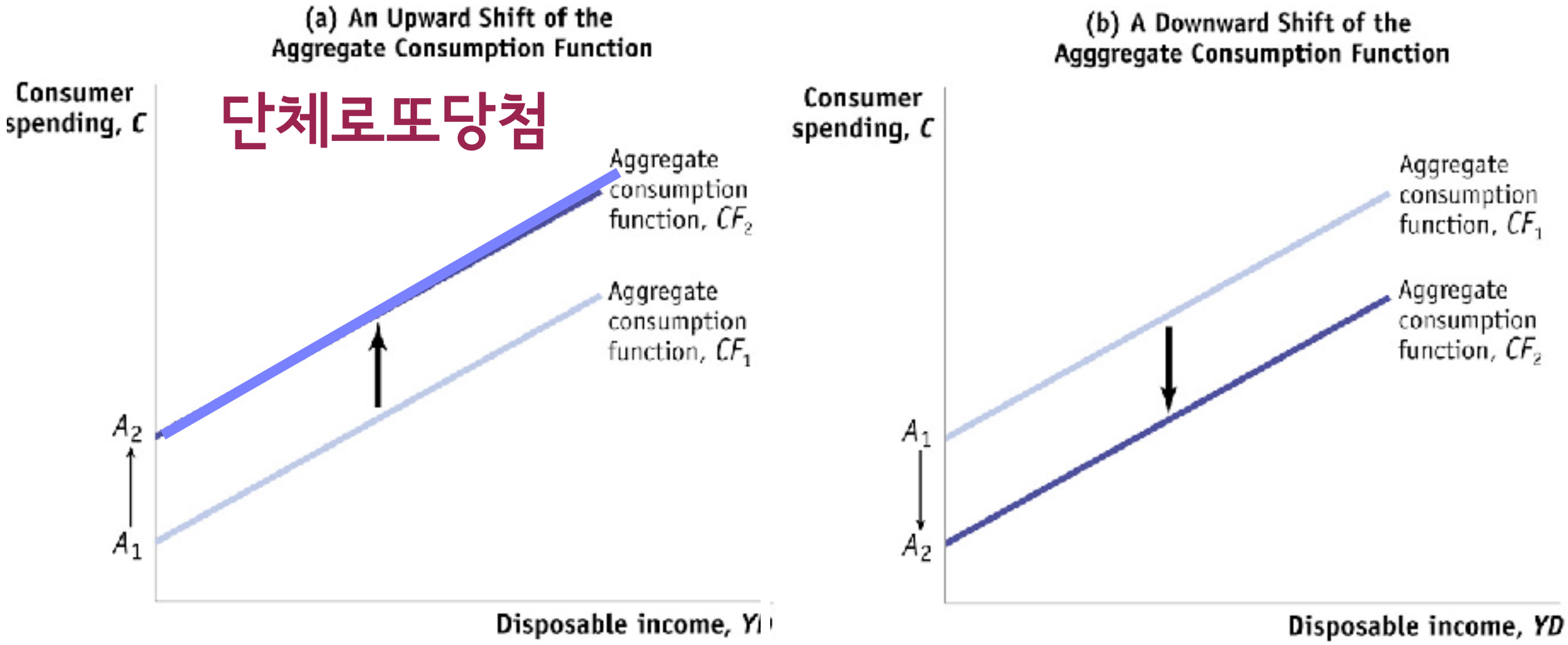
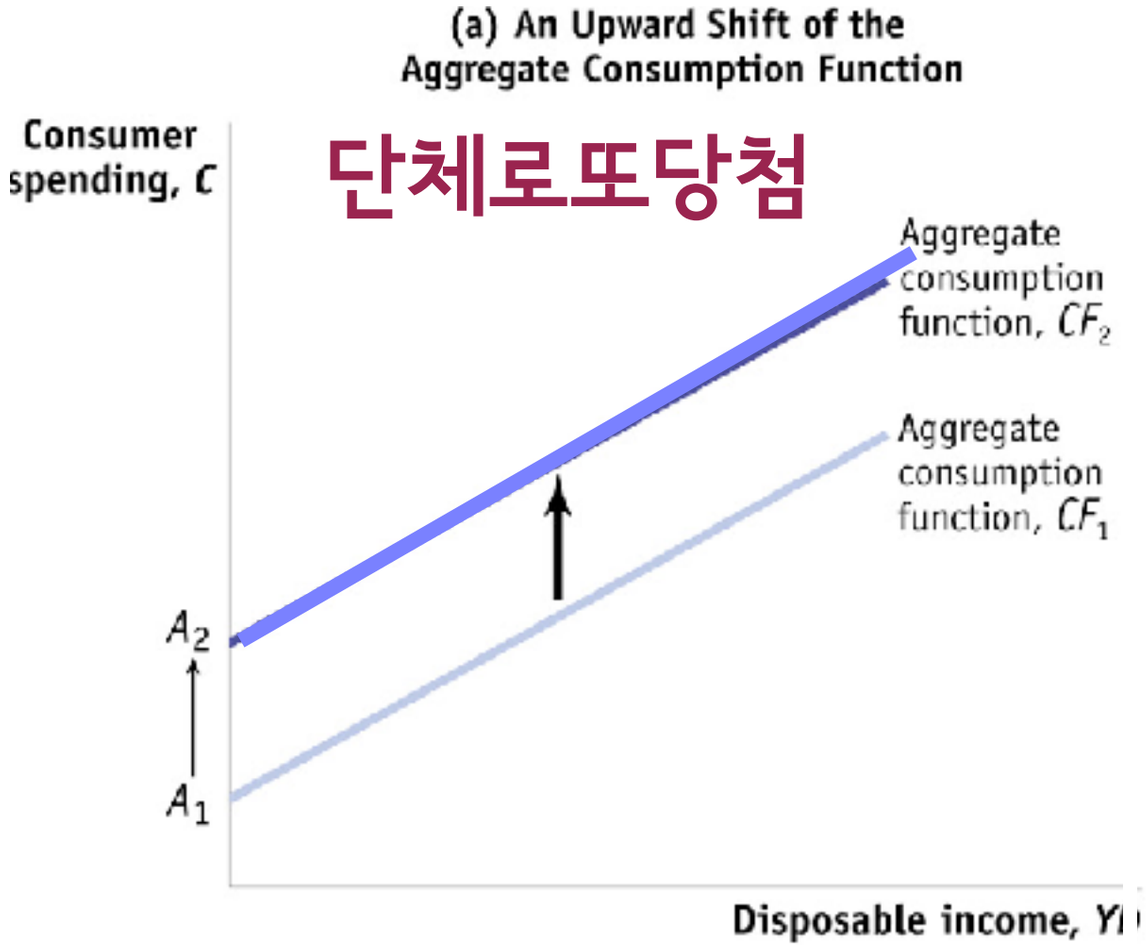
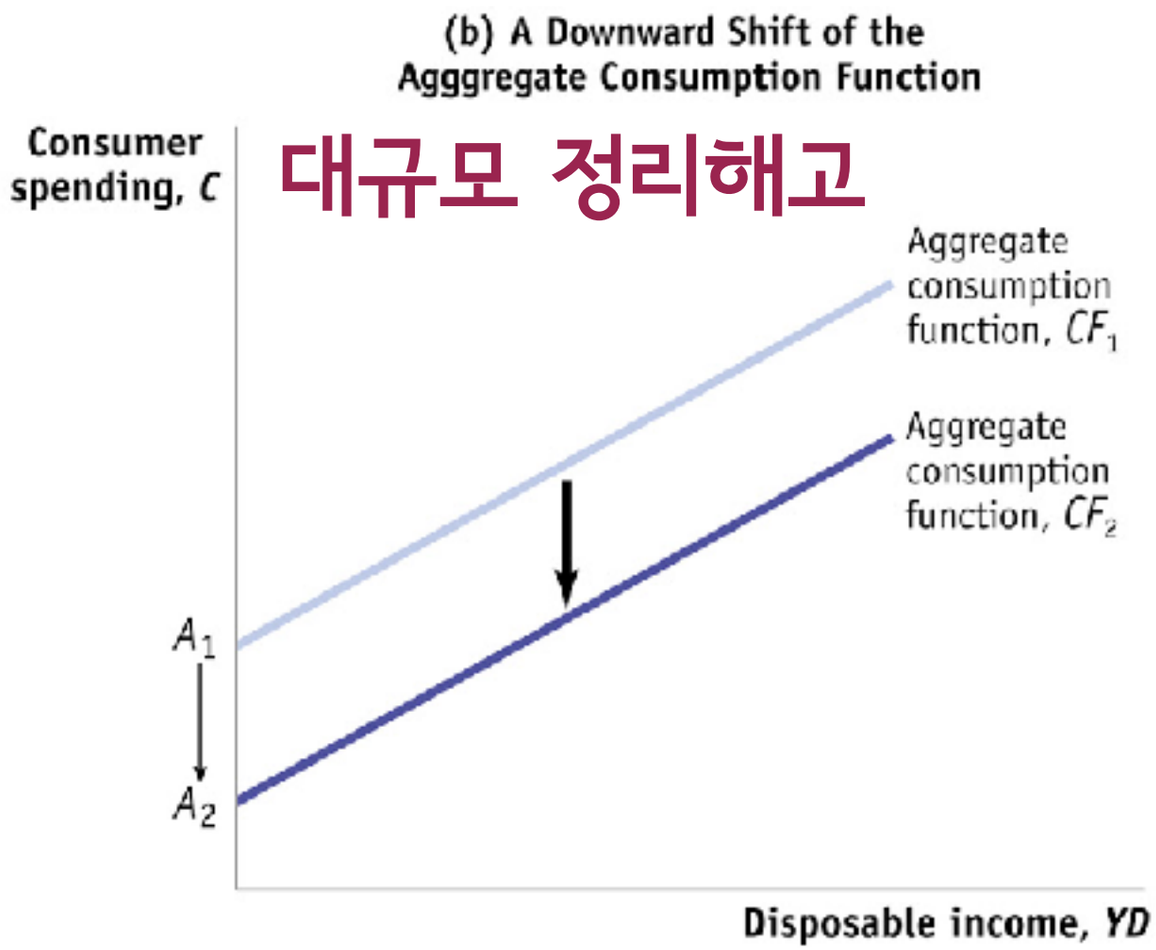
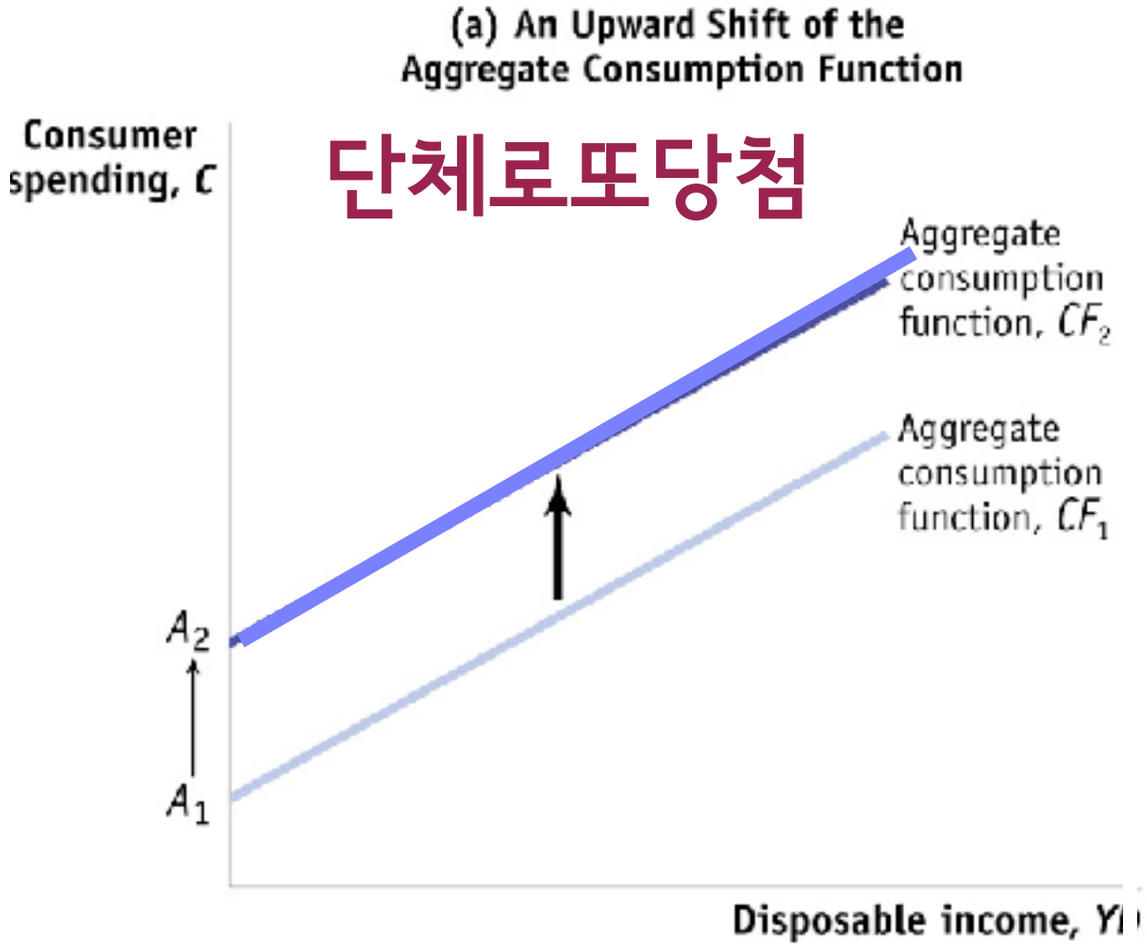


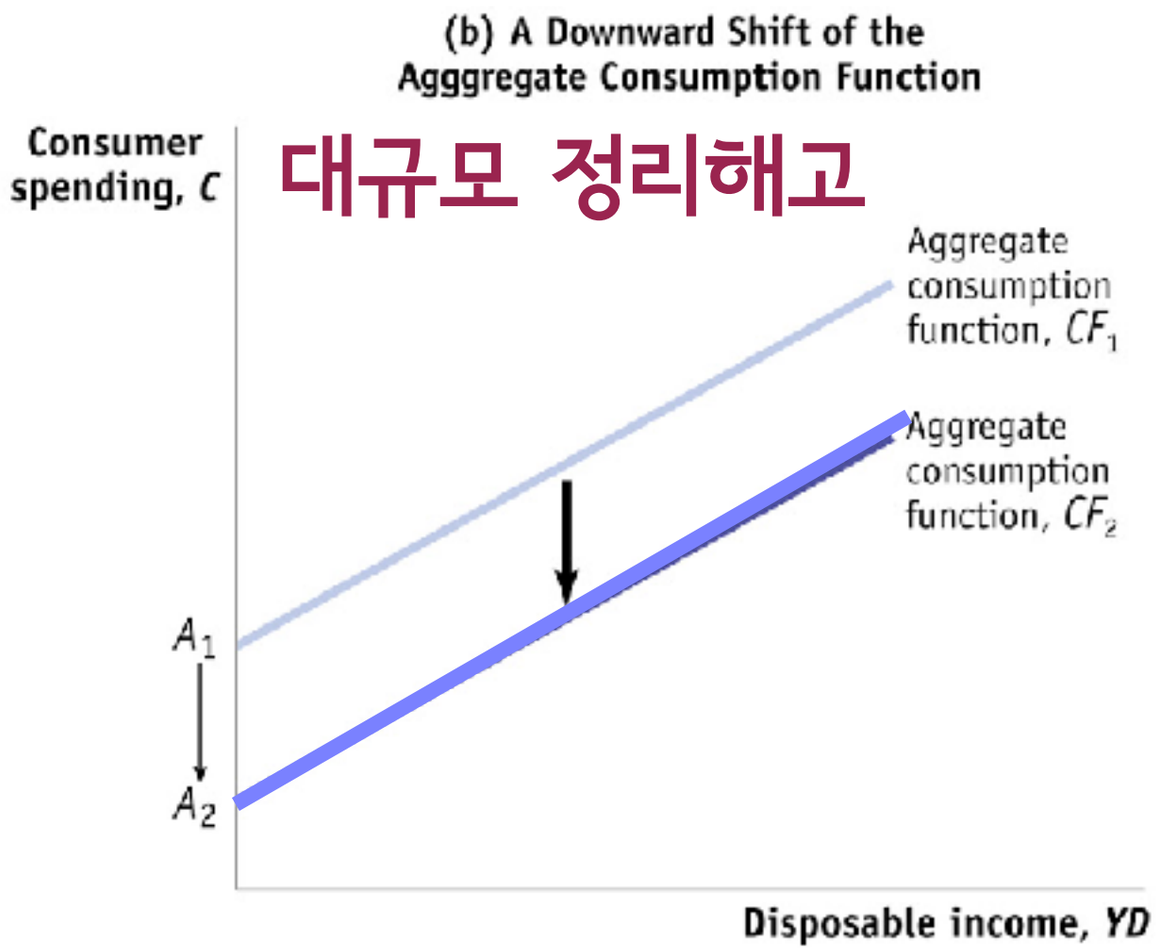
Movement of Cf cv.





Movement of Cf cv.



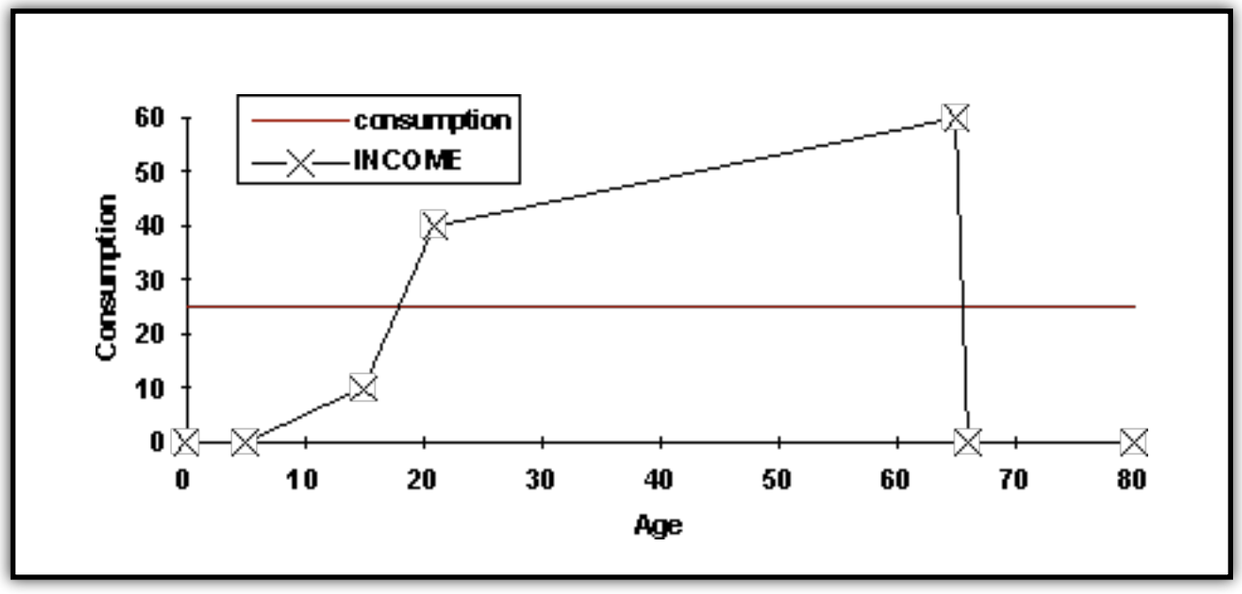


총재산의 변화
Change of Total Wealth

- A는 다음과 같은 상황에서 소비패턴이 다음과 같이 변하였다.
  - 선물로 30만원을 받음: 거의 변하지 않음
  - 매월 10만원을 평생 받음: 소비 증가
- Why?

생애주기가설
Life-Cycle Hypothesis

- 소비자들은 현재의 가처분소득뿐만 아니라 평생에 걸친 가처분소득을 고려
- 가급적 평생 소비수준을 일정하게 유지하려 하는 성향이 있음
- 자세한 내용은 상급 수업에서 배울 것.



부의 변화로 인한 이동

Movement of Cf cv. caused by Change in Wealth

- ex: 주택가격상승[하락]: 주택소유자의 재산 증가[하락] ➔ 기존 소유 부의 증가[하락] ➔ A 증가[하락]
- 다른 예: 주가변동 등

투자지출

Investment Spending

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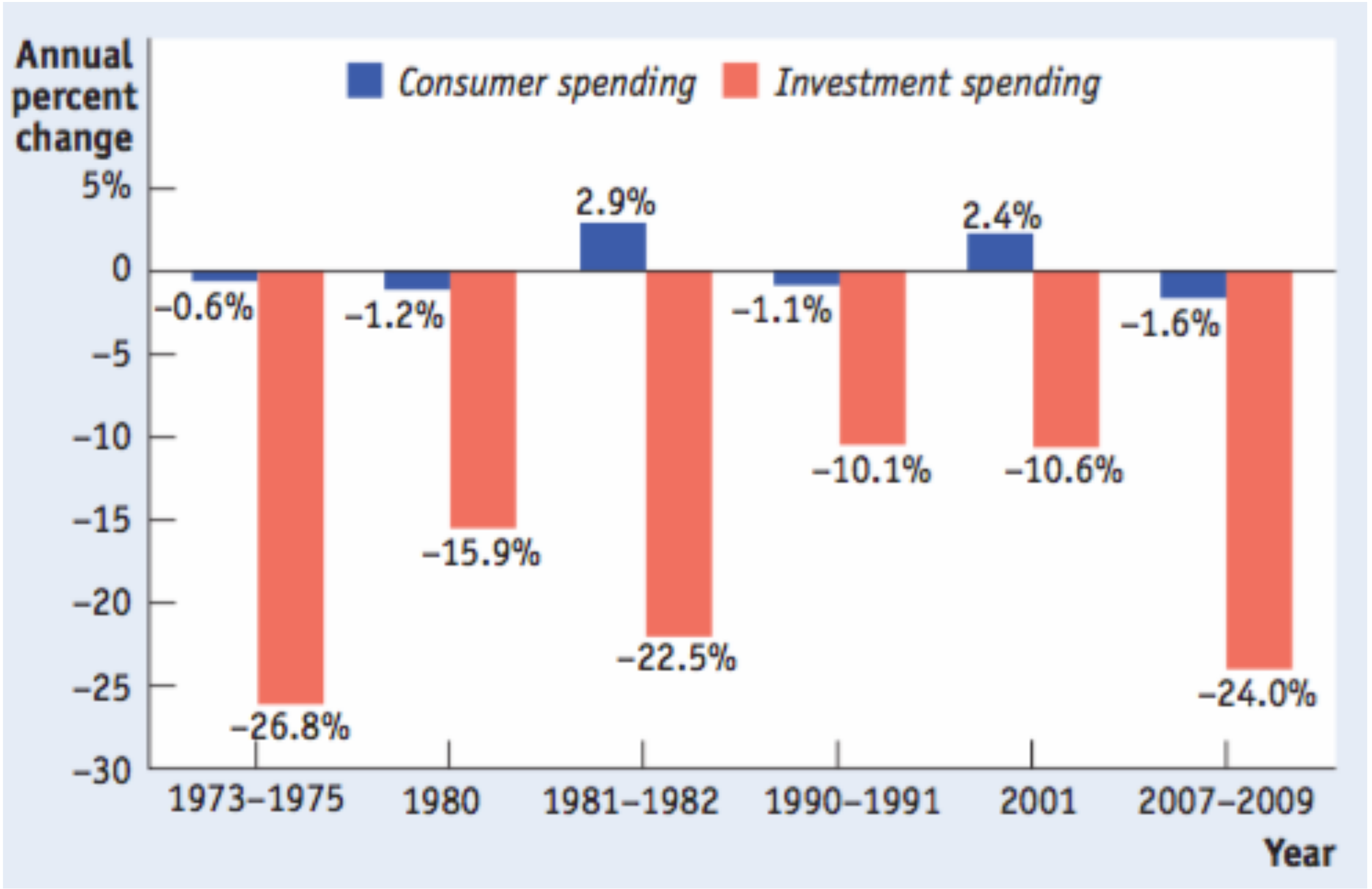
경기변화와 투자지출
Business Change and Investment Spending

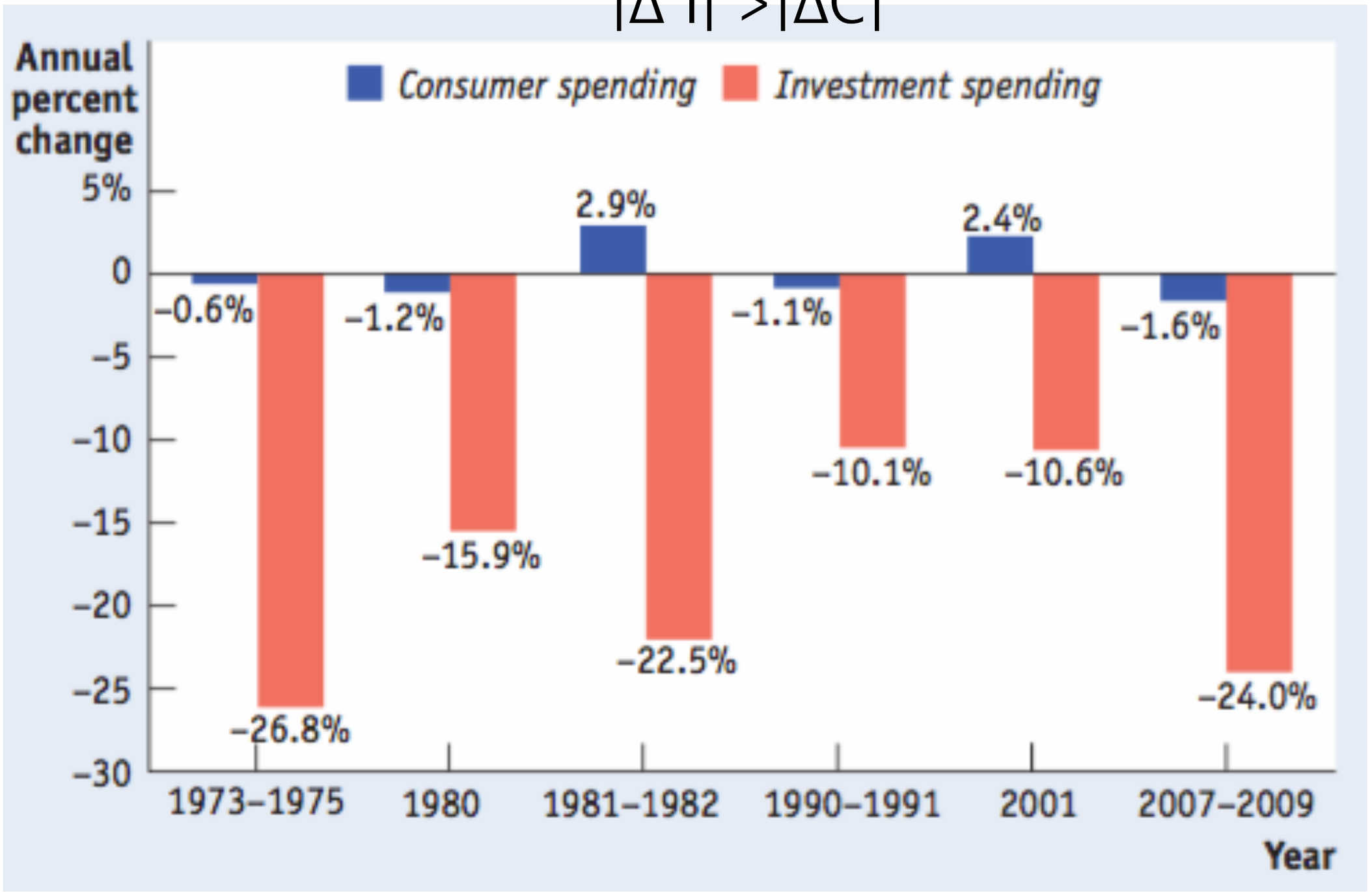
- 일반적으로 경기변동시 발생하는 투자지출변화폭은 소비지출변화폭보다 훨씬 큼
- 소비지출저하 → 투자지출저하?
- 투자지출저하 → 소비지출저하?
- 일반적으로 소비지출감소는 투자지출부진으로 인해 발생되는 승수과정결과로 봄

실증연구: 미국 경기후퇴기의 C, I변화율



실증연구: 미국 경기후퇴기의 C, I변화율

$|\Delta I| > |\Delta C|$



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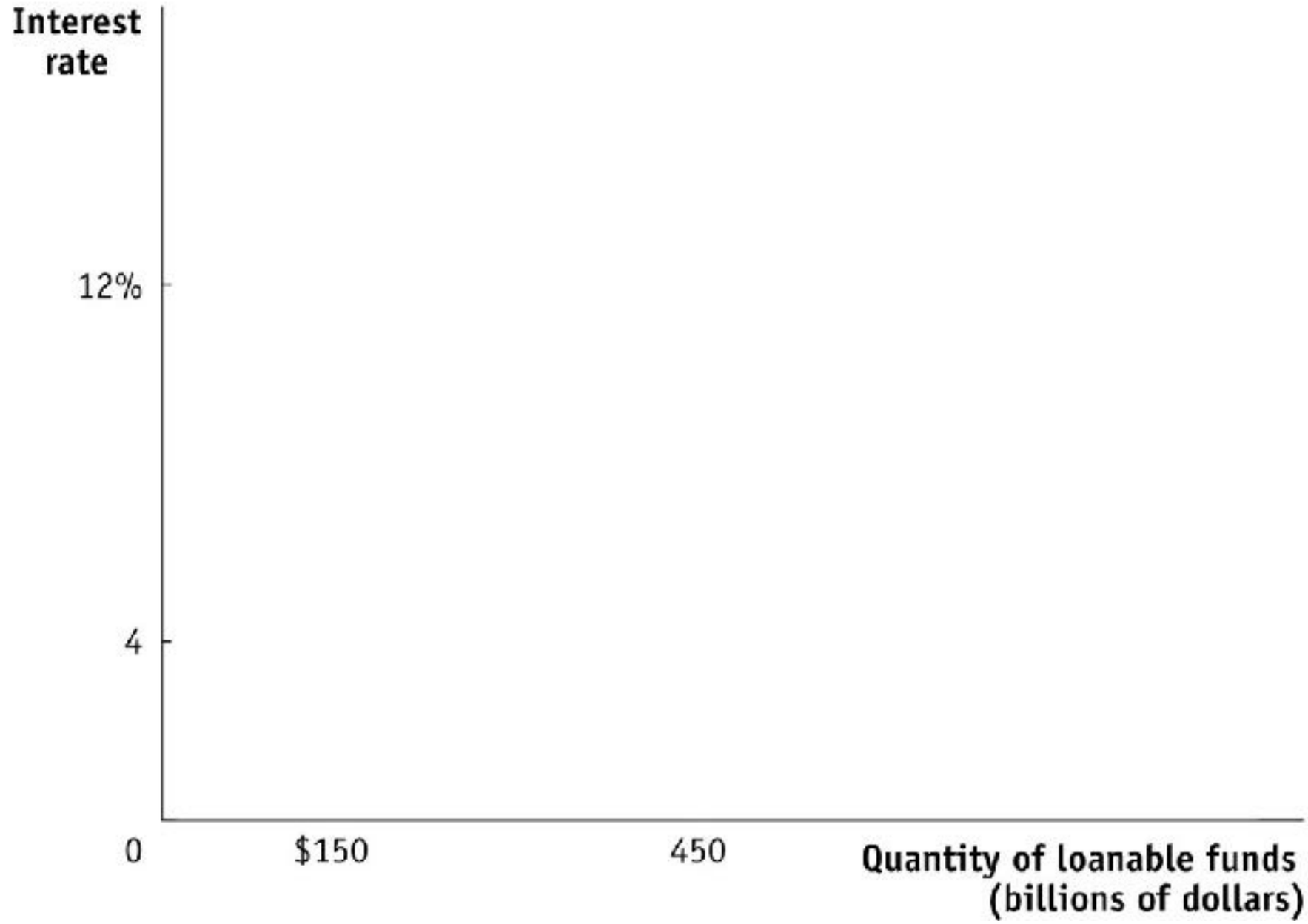
투자지출결정요인
Determinants of Investment Spending

- 이자율(Interest Rate)
- 예상되는 실질 국내총생산(Expected rGDP)
- 현재의 생산용량(Production Capacity)

Relationship: r & I

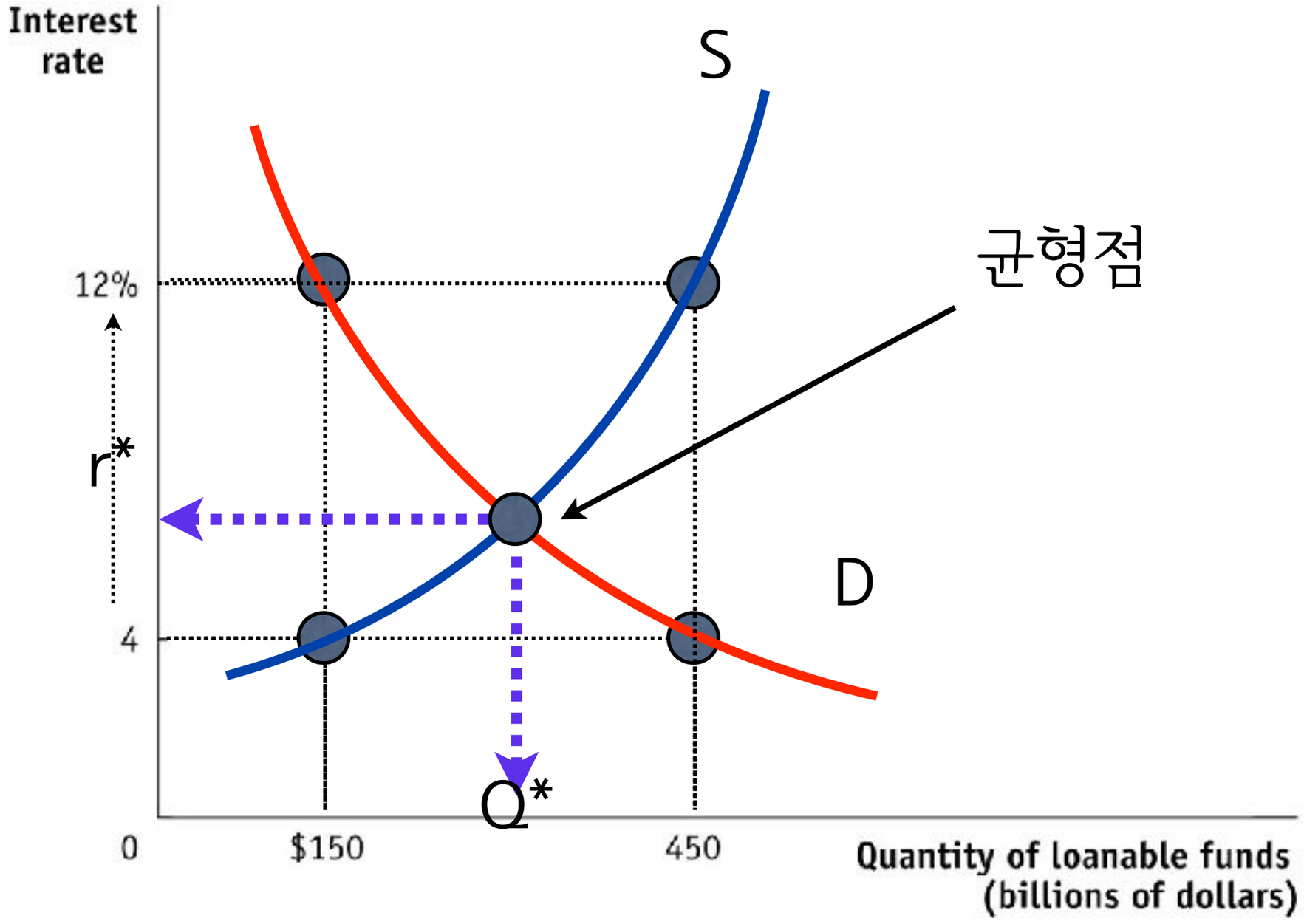
- r(실질이자율)은 대부자금시장의 수요-공급 관계에 의해 결정됨.
  - 공급곡선: 우상향
  - 수요곡선: 우하향
- r과 I는 음(-)의 관계: r이 높으면 I는 감소(투자지출유인이 감소)

복습: 균형이자율
Review: equilibrium interest rate



복습: 균형이자율

Review: equilibrium interest rate



Expected future rGDP

- 미래 rGDP에 대한 예상도에 따라 I는 달라질 수 있음
  - 현재K수준 < 미래rGDP : 투자지출증가
  - 현재K수준 = 미래rGDP : 현상유지
  - 현재K수준 > 미래rGDP : 투자지출저하

생산용량
Production Capacity

- 현재 갖추고 있는 생산용량이 당장의 수요를 맞추는 데에..
  - 모자라다면: 투자지출 증가
  - 적당하다면: 현상유지
  - 과잉이라면: 투자지출 감소

종합: 가속도원리
Synthesis: Accelerator Principle

- “rGDP 증가율이 높을[낮을]수록 계획된 투자지출이 많아[적어]진다.”

Inventory, Unplanned Investment Spending

- 어느 정도의 재고는 일반적으로 필요함
  - 신속한 공급변화대응
  - 생산의 연속성 유지

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재고투자
Inventory Investment

- 재고증가는 일종의 투자지출에 해당됨
- 재고투자: 주어진 기간동안 발생한 재고의 변화분 (flow)
  - 재고감소는 음(-)의 재고투자에 해당
  - 재고증가는 양(+)의 재고투자에 해당

Unplanned Investment Spending

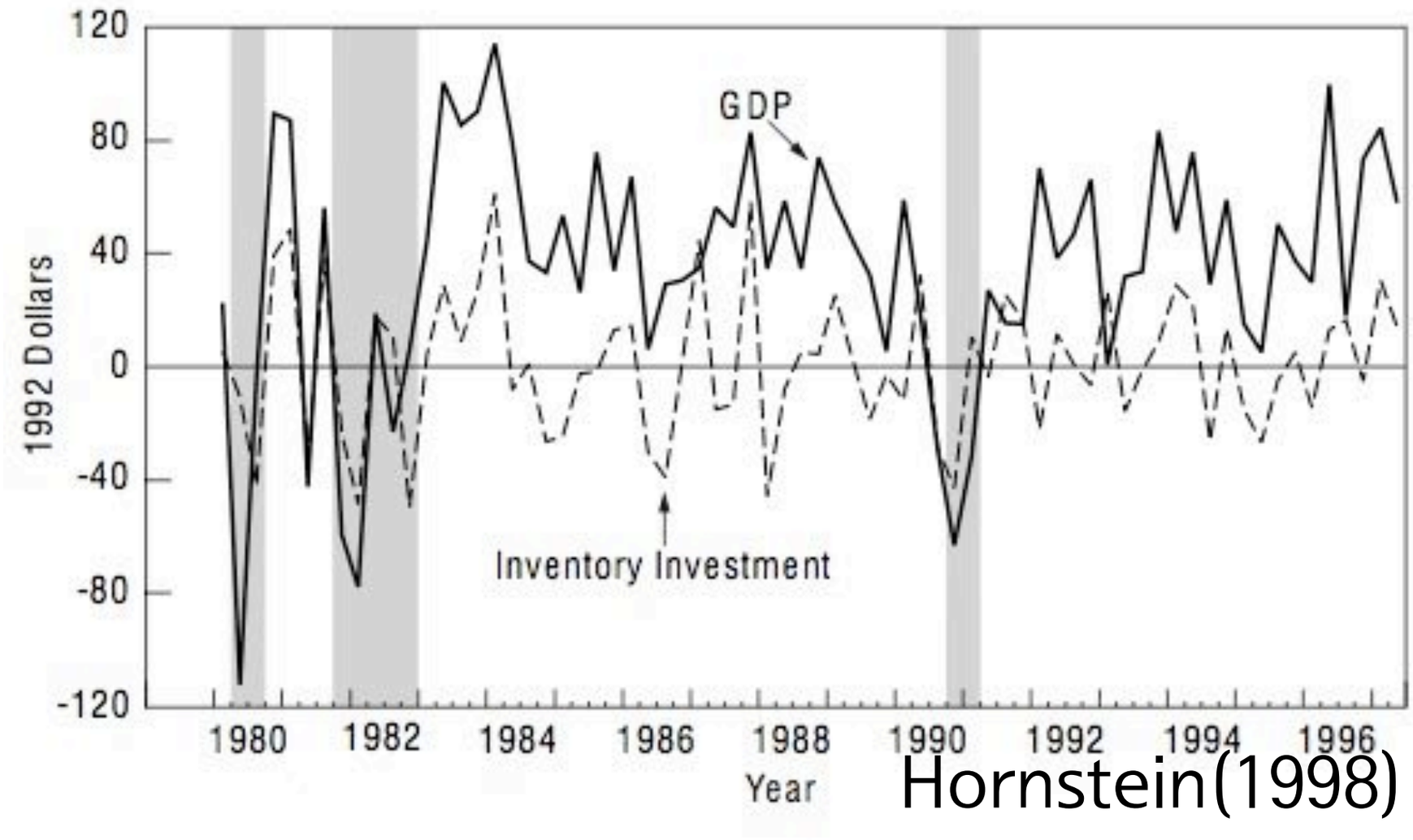
- 예상하지 못한 매출의 변화로 인해 발생한 재고의 변동
- 기업의 생산활동이 판매로 실현되지 않을 경우 계획되지 않은 재고의 증가로 나타남
- 계획되지는 않았지만 실제로 발생한 투자지출을 의미

Actual Investment Spending(AIS)

- I(A.I.S) = I(Unplanned) + I(Planned)
- 재고수준변화의 의미(경기선행지표)
  - 재고증가: 매출이 예상보다 적었음 ➔ 투자지출 감소가 예상됨
  - 재고감소: 매출이 예상보다 많았음 ➔ 투자지출 증가가 예상됨

rGDP and Inventory

Figure 1 Changes in GDP and Inventory Investment



Hornstein(1998)

Next Topic

- Income-Spending Model

수고하셨습니다!

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수고하셨습니다!

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Income-Spending Model

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Income-Spending Model

- 이 모델은 AD곡선의 수평이동과정에 대한 27장의 설명을 보충
- 승수효과의 실제 조정과정을 재고에 대한 반응으로 설명

되짚기: AD곡선이동
Review: Movement of AD cv.

- Demand Shock: CH27
- Multiplier Effect: CH27

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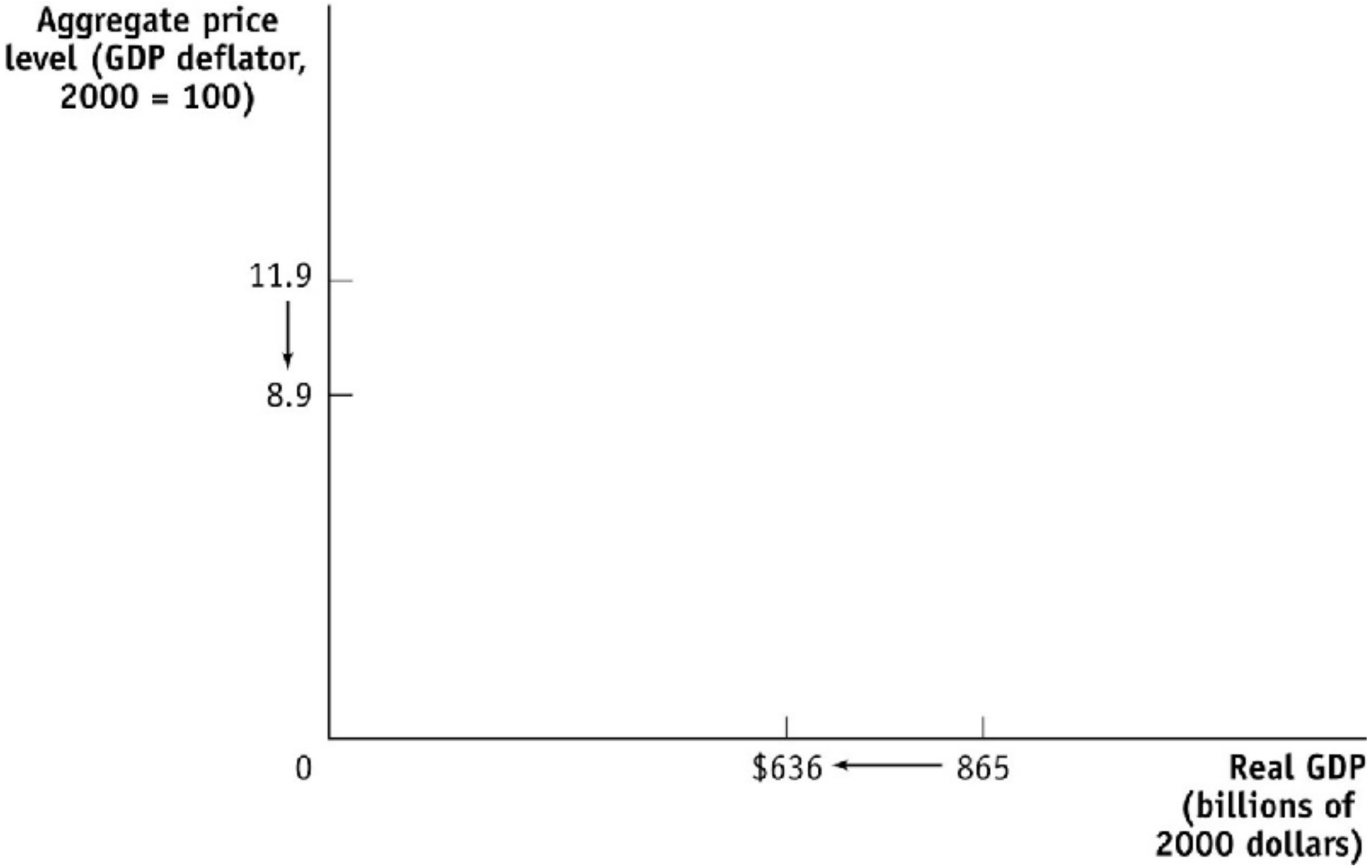
Demand Shock(-)LR



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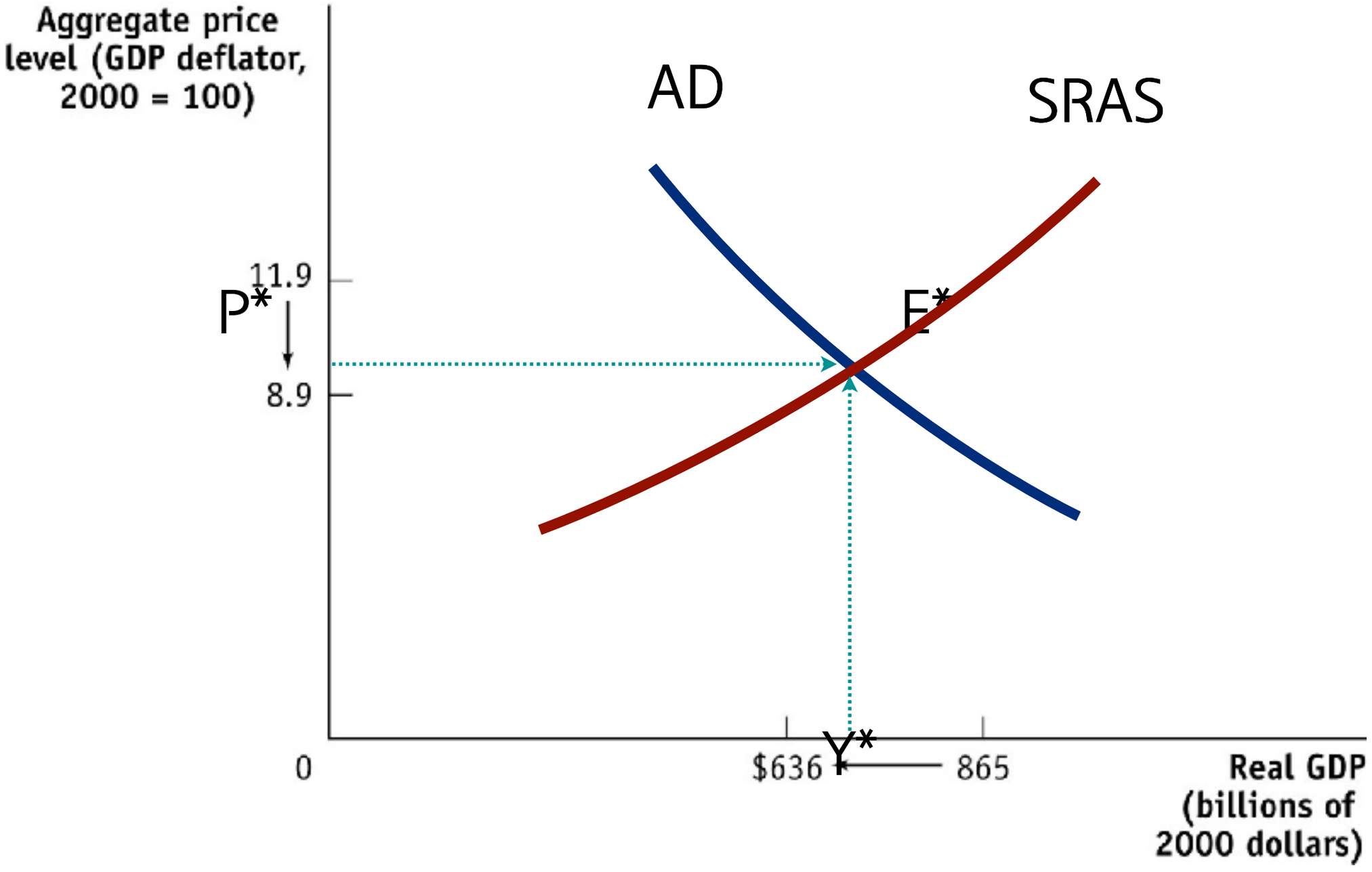

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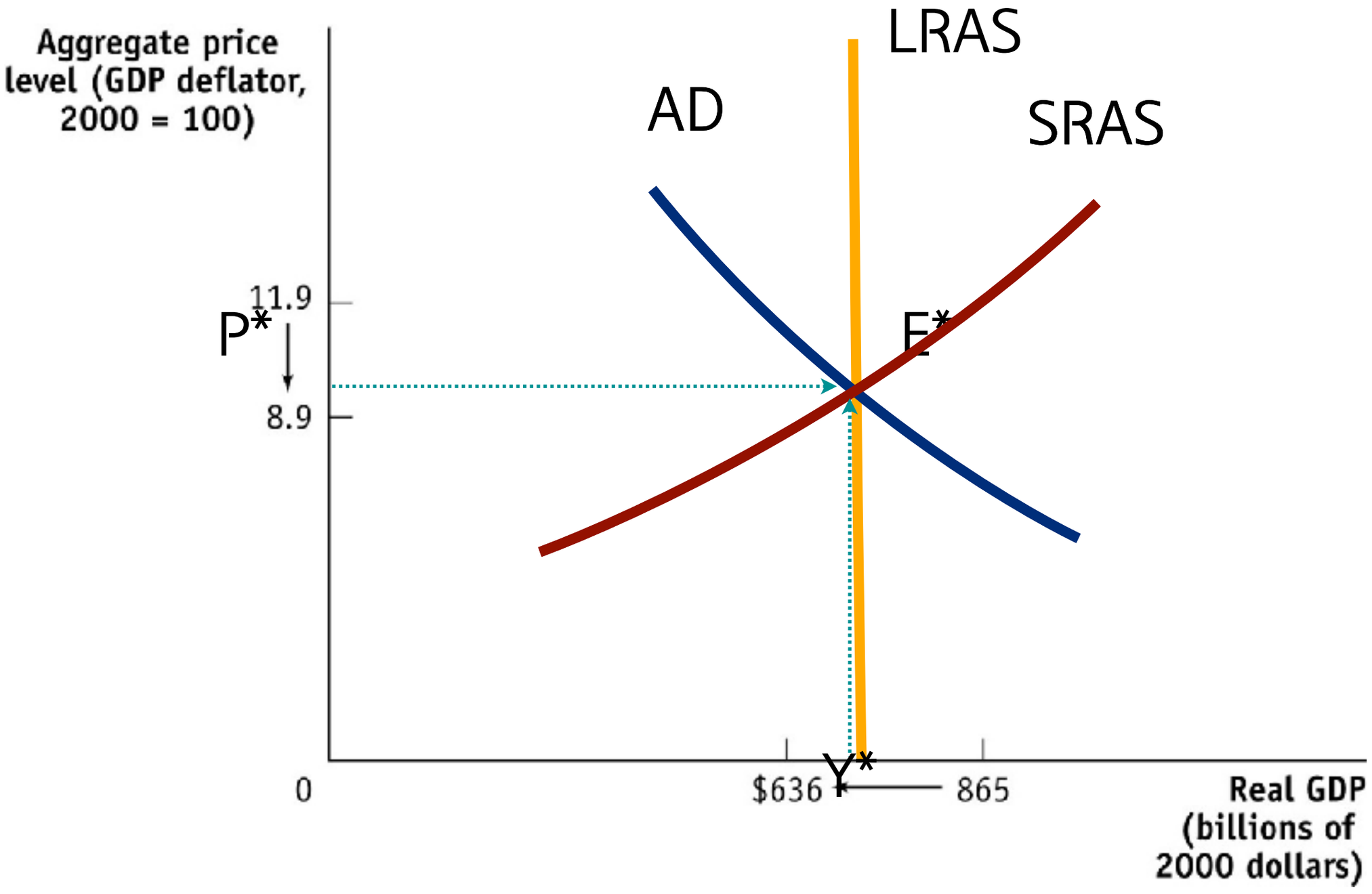
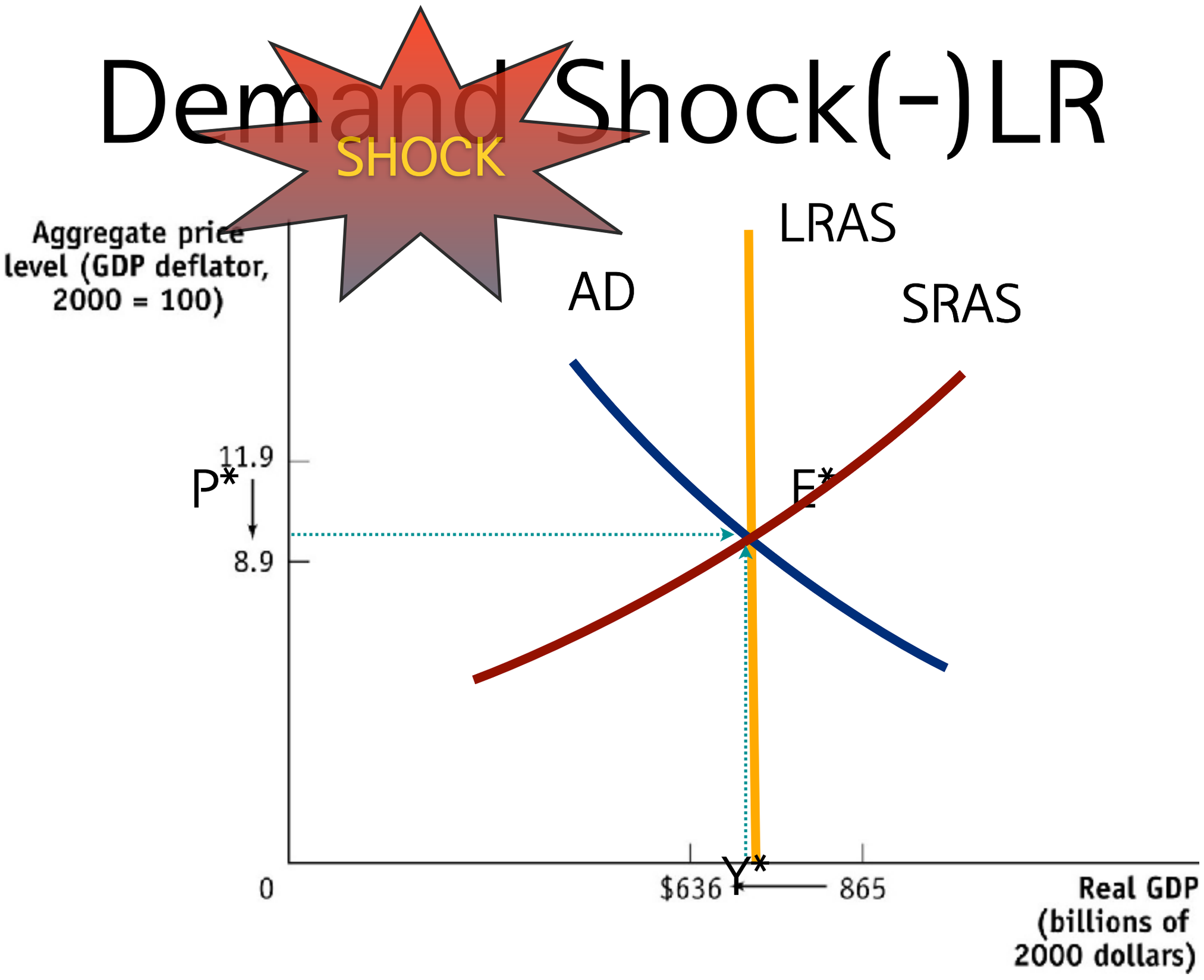


Demand Shock(-)LR



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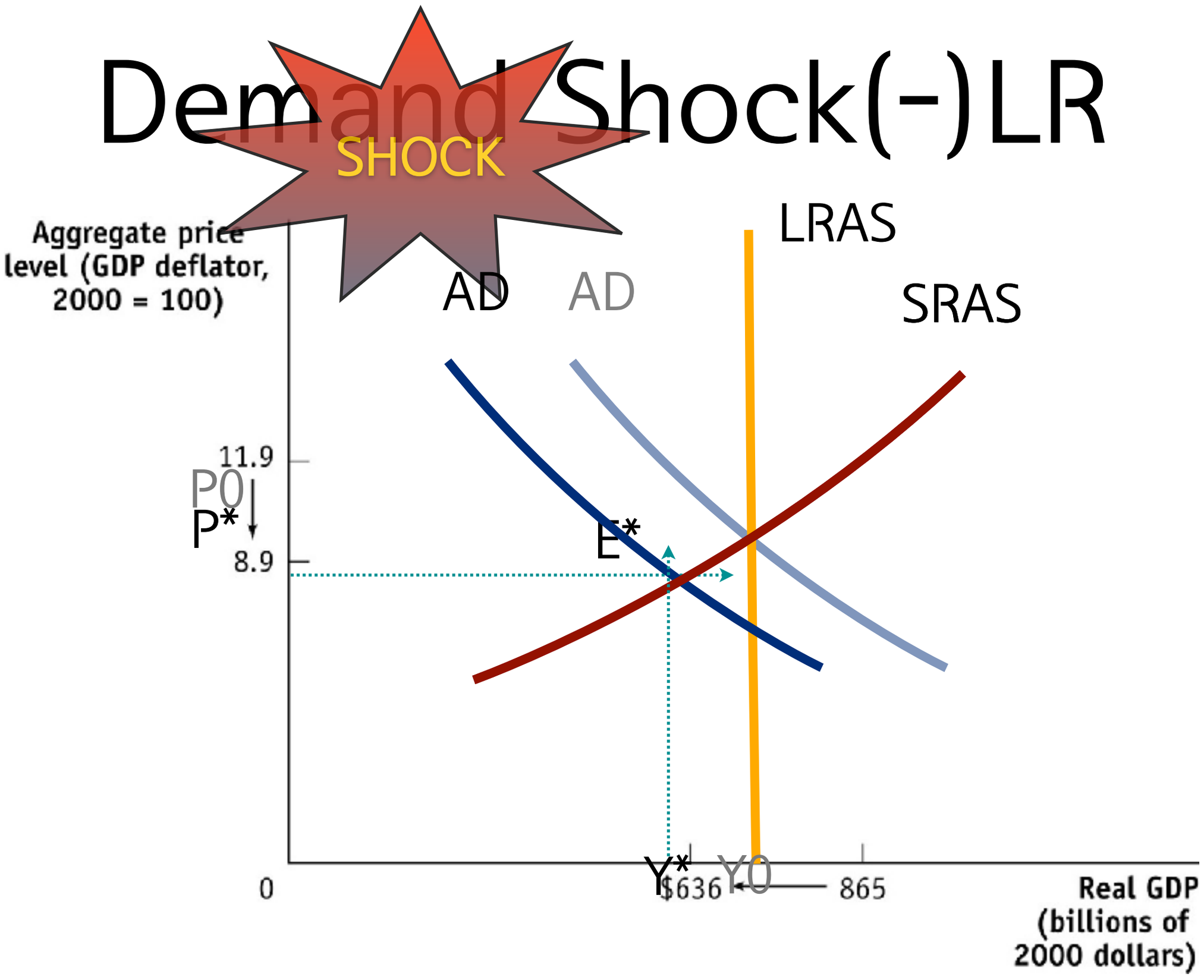

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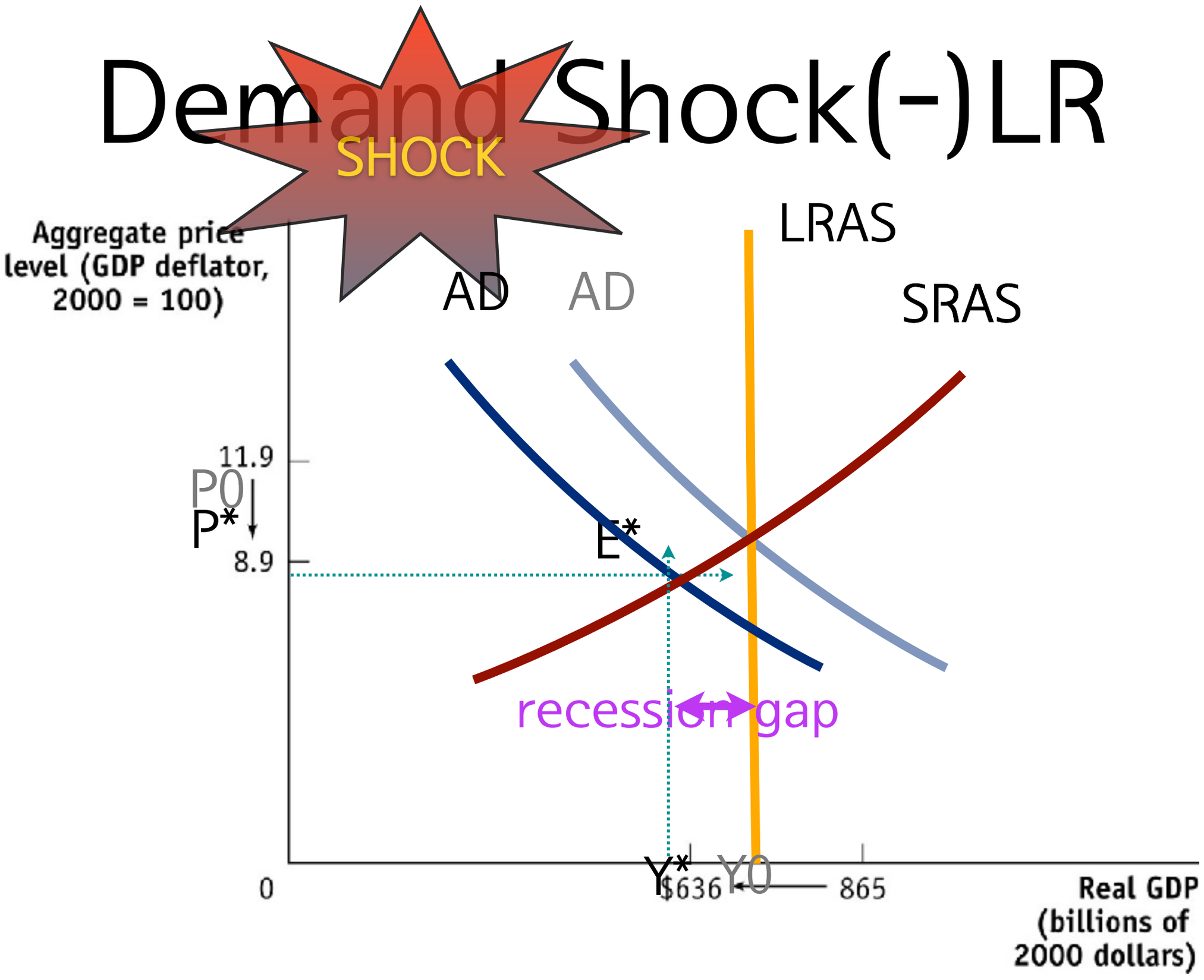

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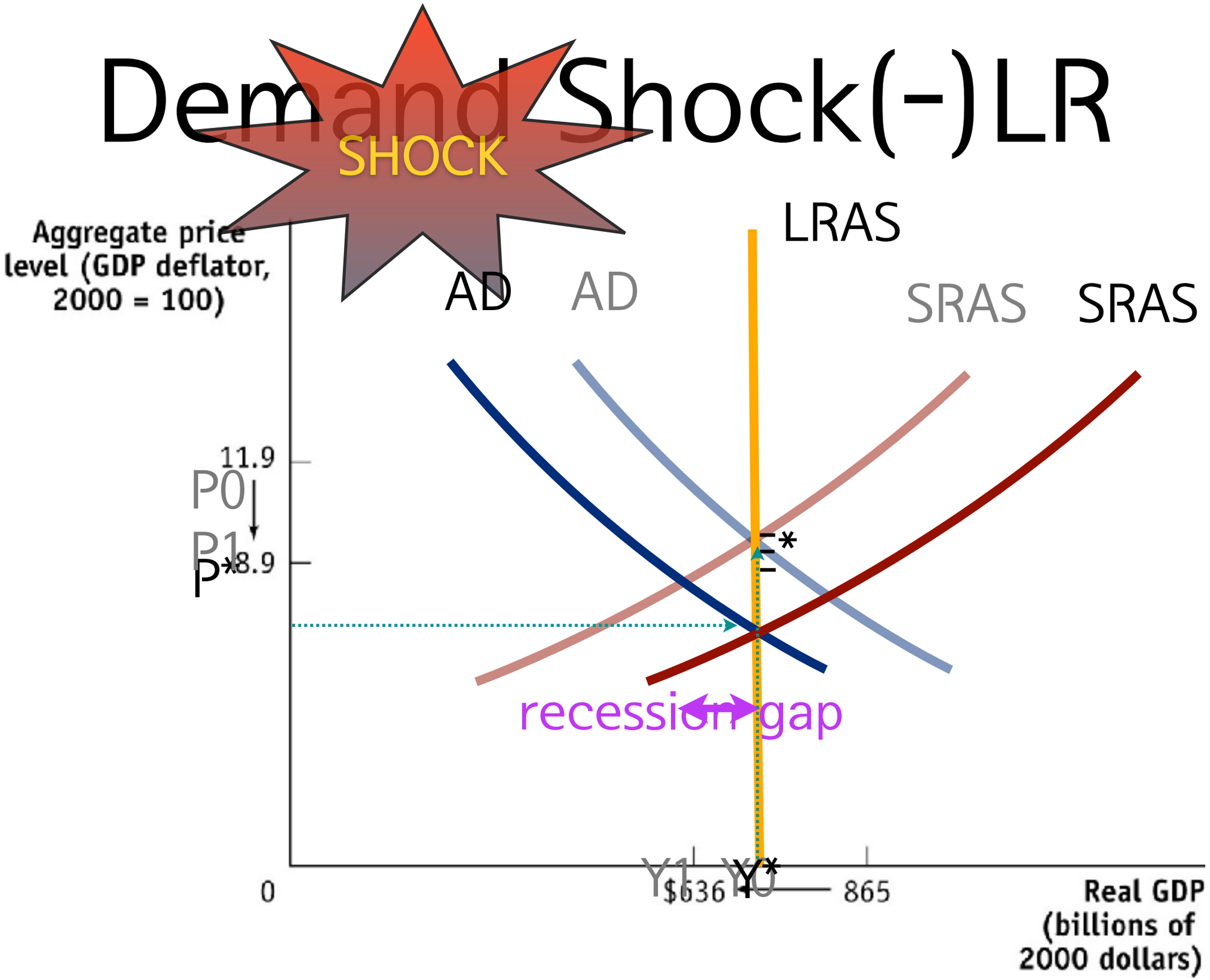
Demand Shock(-)LR



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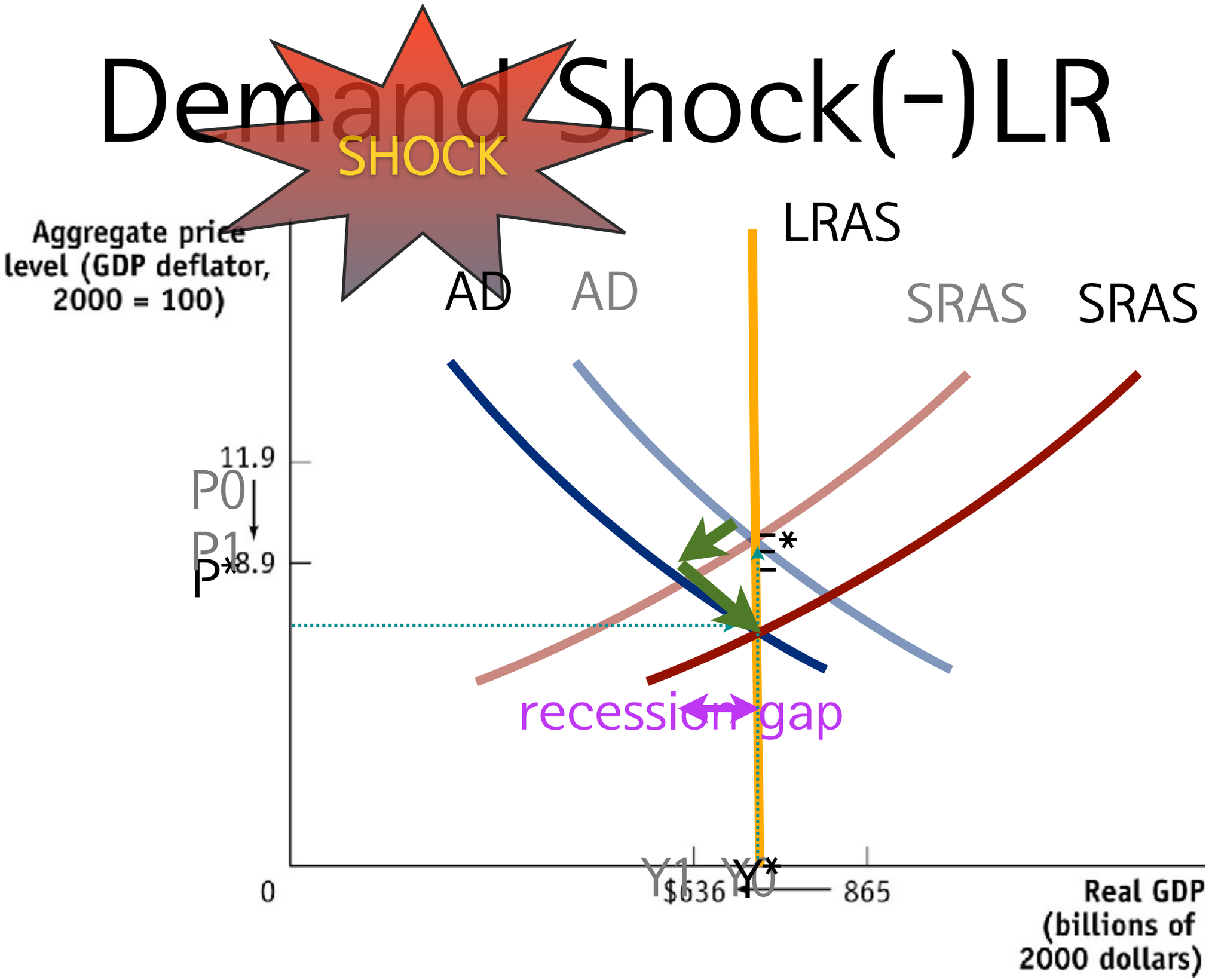
Demand Shock(-)LR



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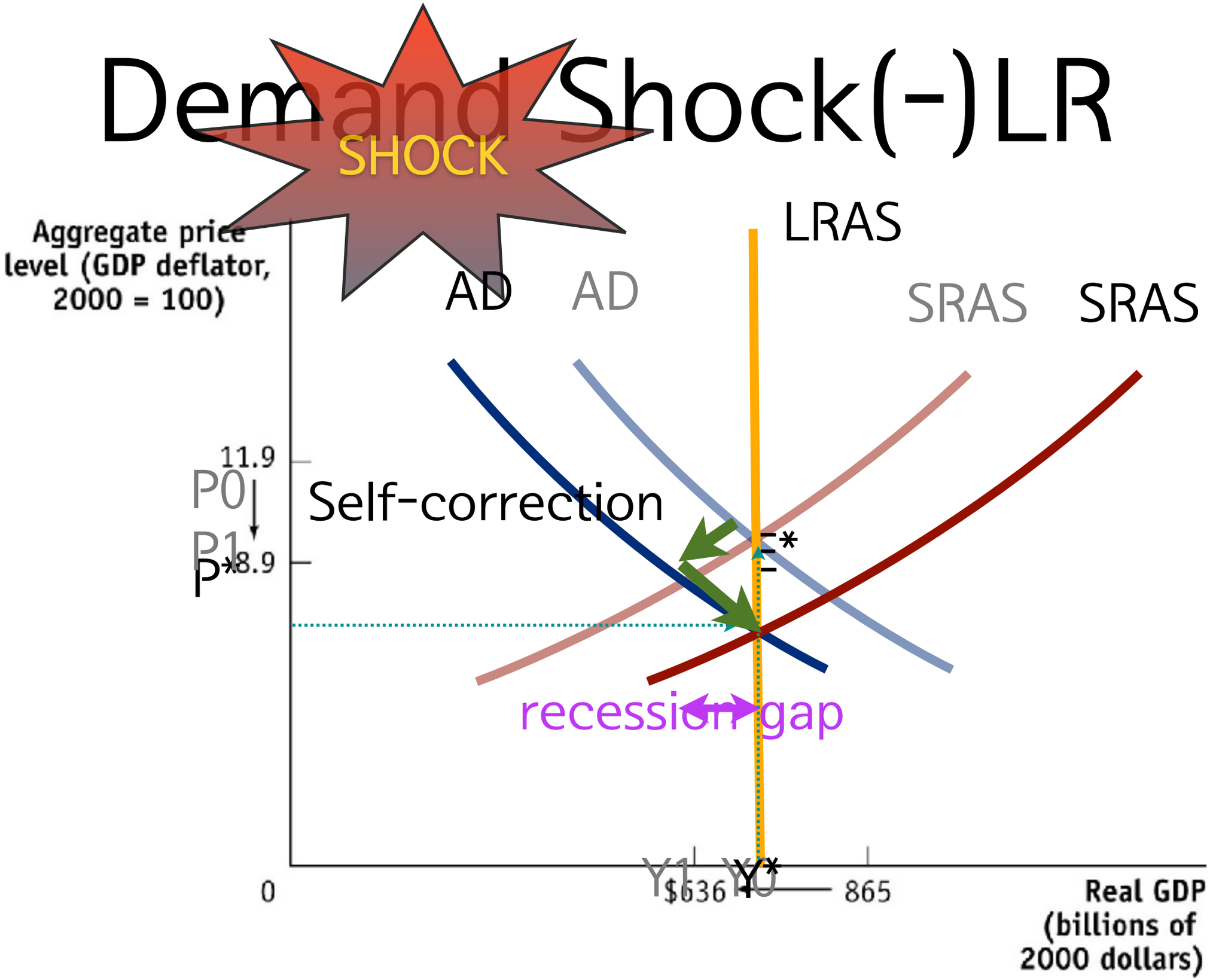

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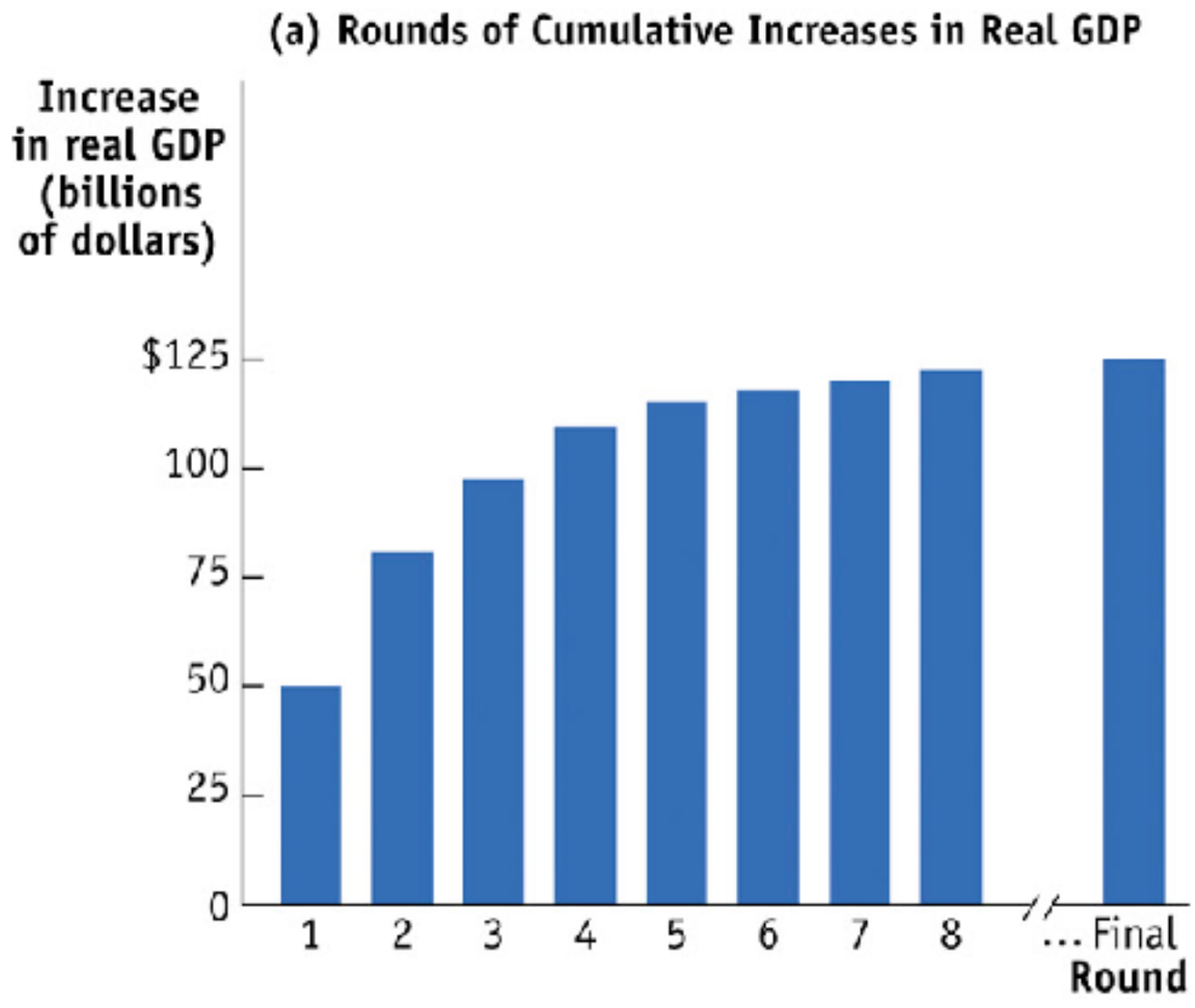
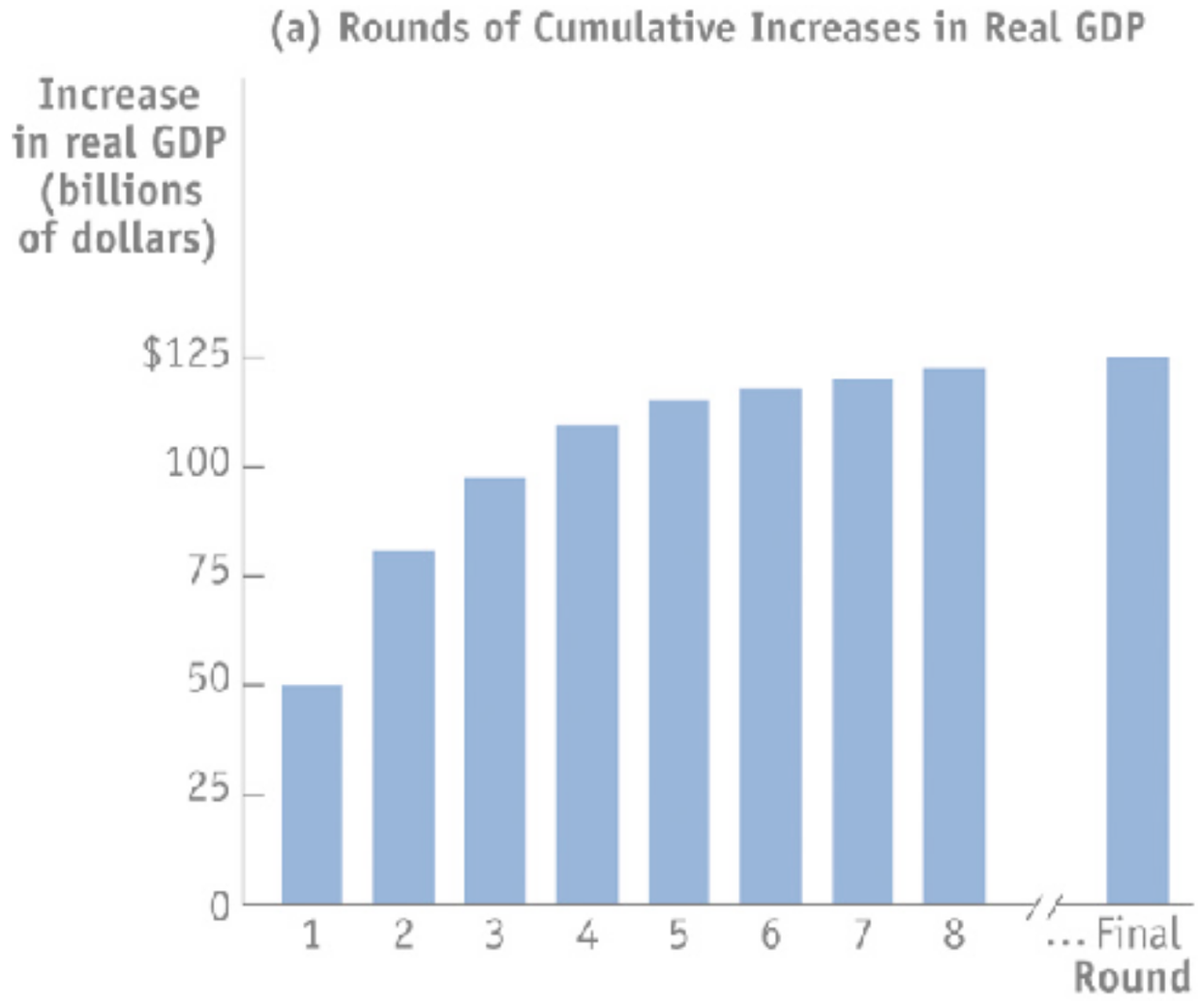
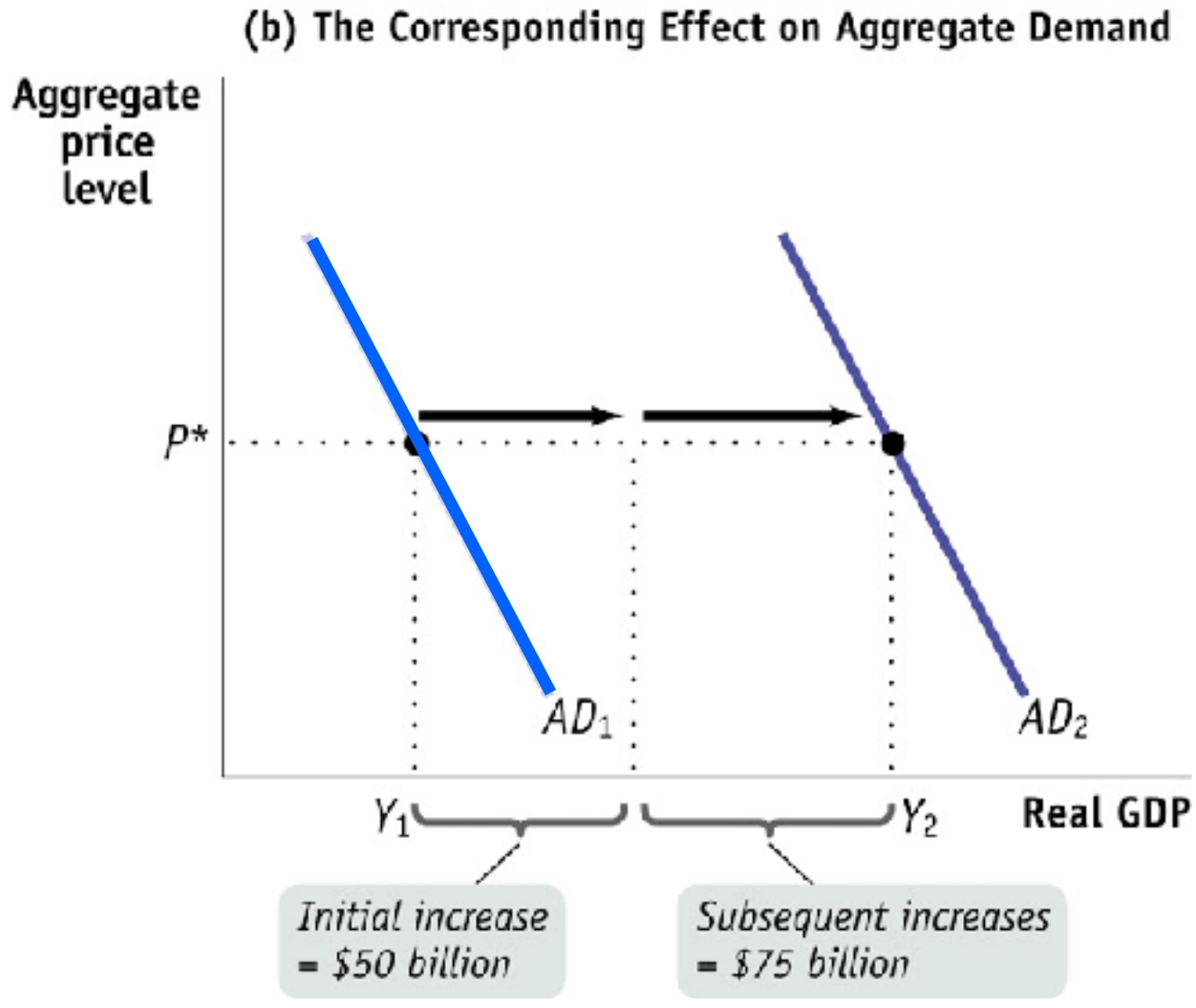
Multiplier effect: Graphical Explanation

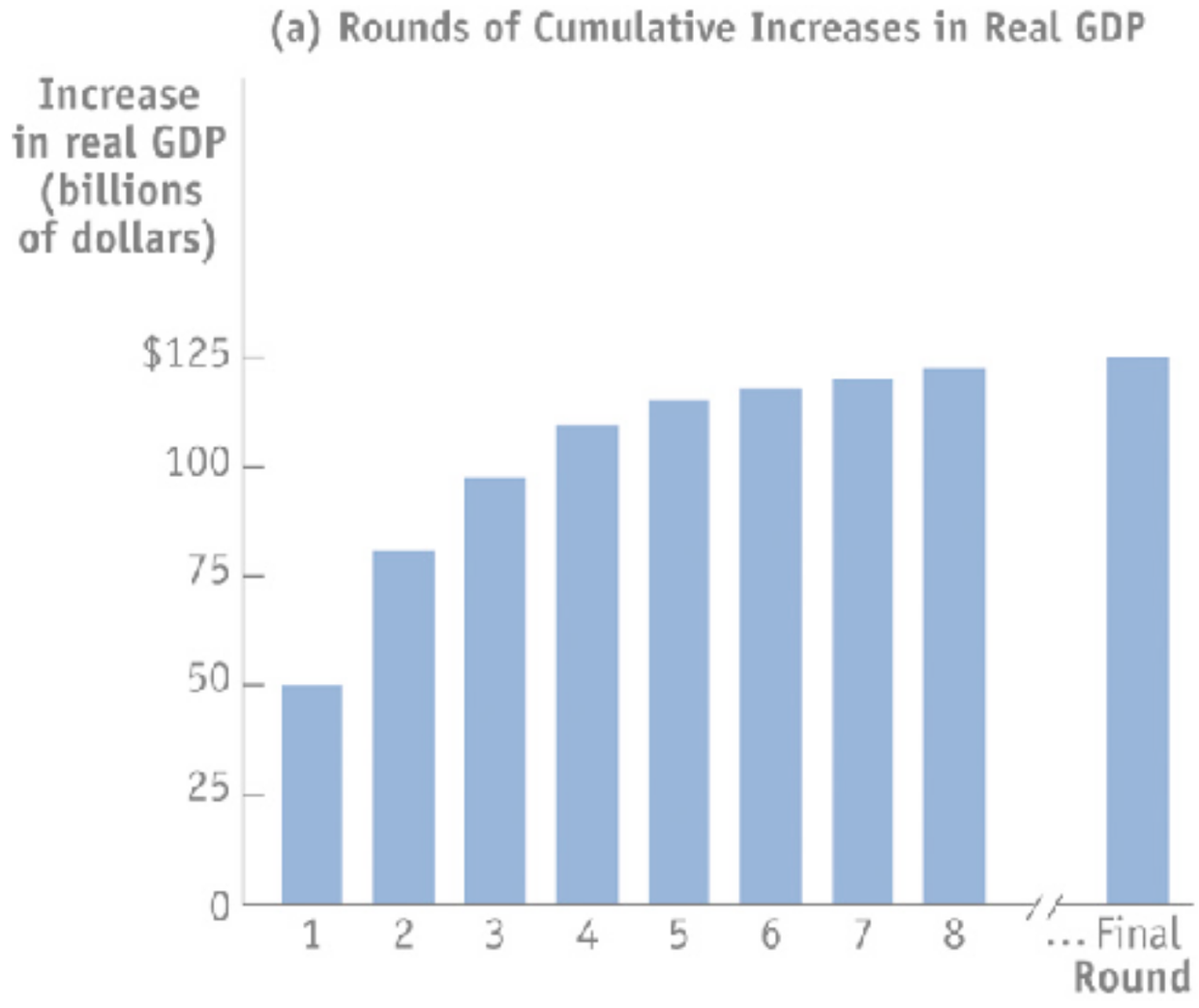


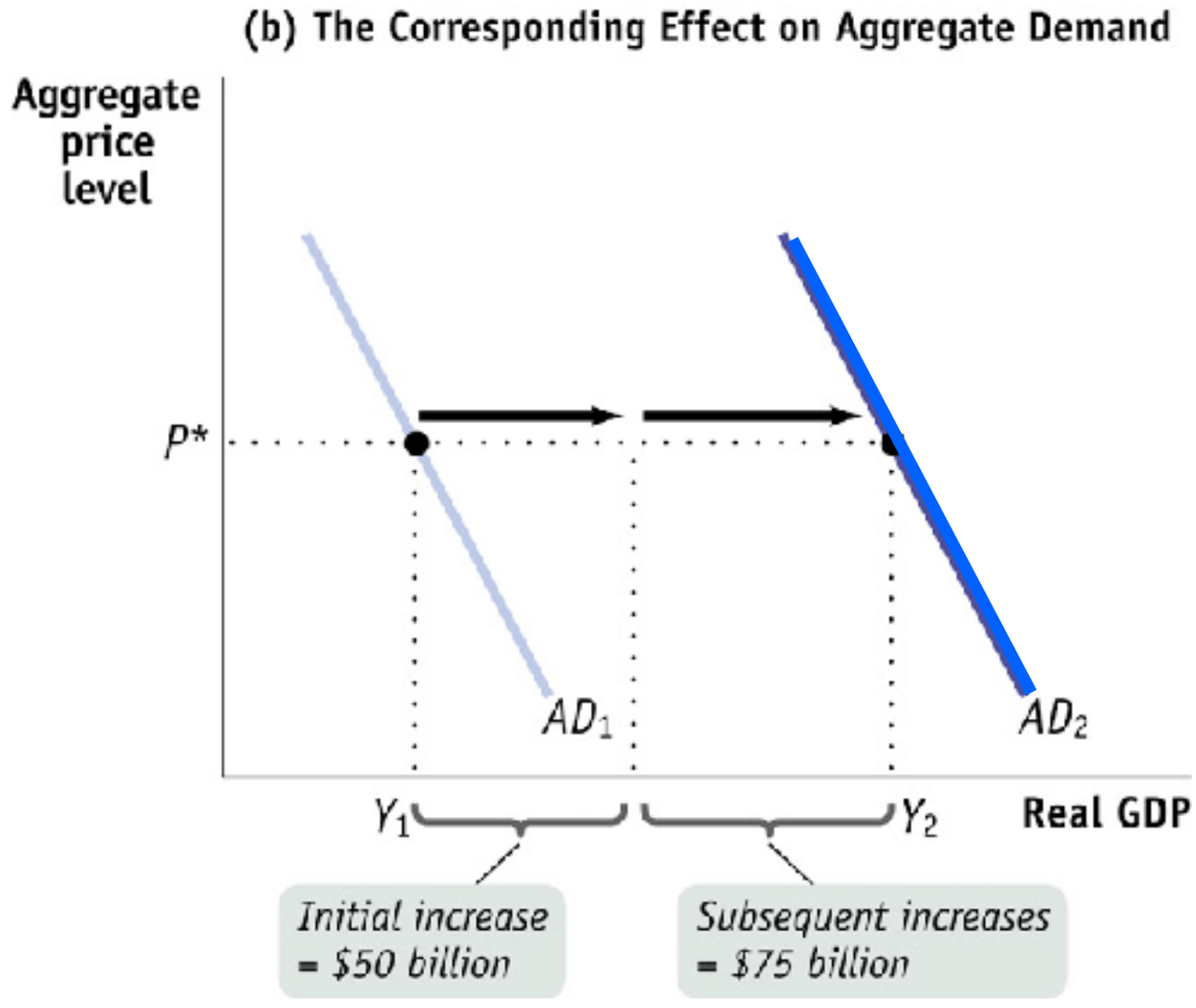
Multiplier effect: Graphical Explanation





Multiplier effect: Graphical Explanation





Assumptions

- Constant Price Level: Horizontal SRAS
  - Flexible Price Level: CH28 (Fiscal Policy)
- Constant Interest rate
  - Flexible Interest rate: CH30 (Monetary Policy)
- G=TR=T=0 ---> relaxed in CH28 (Fiscal Policy)
- X=IM=0 ----> relaxed in CH34 (Open Economy)
- Constant Planned Investment

계획된 총지출
Planned Aggregate Expenditure

- 정의: 경제에서 계획된 지출의 총액
- Unplanned Consumption은 존재 불가능
  - 즉, 모든 C는 계획된 것
  - I에는 계획된 것과 계획되지 않은 것이 존재
- Therefore:
  AE[Planned] = C + I[Planned]

Planned C+I and rGDP

- GDP = C+I(+G+X-IM)
- YD = Y - T + TR = Y = GDP
  - G=T=TR=0 이므로
- C = A + MPC* YD

Planned AE and rGDP

- Example: A=300, MPC=0.6
- C = 300 + 0.6 * YD

Table Expression

index	rGDP	YD	C	I[Planned]	AE[Planned]
MPC	0.6	A	300		
property:	independent	=rGDP	= A + YD*MPC	independent	=C+I[Planned]
case0	0	0	300	500	800
case1	500	500	600	500	1100
case2	1000	1000	900	500	1400
case3	1500	1500	1200	500	1700
case4	2000	2000	1500	500	2000
case5	2500	2500	1800	500	2300
case6	3000	3000	2100	500	2600
case7	3500	3500	2400	500	2900

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Table Expression

index	rGDP	YD	C	I[Planned]	AE[Planned]
MPC	0.6	A	300		
property:	independent	=rGDP	= A + YD*MPC	independent	=C+I[Planned]
case0	0	0	300	500	800
case1	500	500	600	500	1100
case2	1000	1000	900	500	1400
case3	1500	1500	1200	500	1700
case4	2000	2000	1500	500	2000
case5	2500	2500	1800	500	2300
case6	3000	3000	2100	500	2600
case7	3500	3500	2400	500	2900

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Table Expression

How can AE[Planned] ≠ rGDP?

index	rGDP	YD	C	I[Planned]	AE[Planned]
MPC	0.6	A	300		
property:	independent	=rGDP	= A + YD*MPC	independent	=C+I[Planned]
case0	0	0	300	500	800
case1	500	500	600	500	1100
case2	1000	1000	900	500	1400
case3	1500	1500	1200	500	1700
case4	2000	2000	1500	500	2000
case5	2500	2500	1800	500	2300
case6	3000	3000	2100	500	2600
case7	3500	3500	2400	500	2900

WHY AE[P] ≠ rGDP?

- Answer: I[Unplanned] :: 비자발적 재고
- AE[Planned]+I[Unplanned] = rGDP
- 거시경제는 I[Unplanned]를 제거하는 방향으로 자기자신을 조절 ➔ 소득-지출 균형

Income-Expenditure Equilibrium

index	rGDP	YD	C	I[Planned]	AE[Planned]
4	2000	2000	1500	500	2000

- 조정과정을 통해 I[Unplanned]=0 를 달성한 상태
- 소득지출균형 상태에서는 rGDP = AE[Planned]

Adding I[Unplanned]

Error in Text: Krugman p891 Tb28-2: I[planned]➔I[Unplanned]

index	rGDP	YD	C	I[Planned]	AE[Planned	I[Unplanned
MPC	0.6	A	300			
property	independent	=rGDP	= A + YD*MPC	independent	=C+I[Planned]	=rGDP-AE[Planned]
0	0	0	300	500	800	-800
1	500	500	600	500	1100	-600
2	1000	1000	900	500	1400	-400
3	1500	1500	1200	500	1700	-200
4	2000	2000	1500	500	2000	0
5	2500	2500	1800	500	2300	200
6	3000	3000	2100	500	2600	400
7	3500	3500	2400	500	2900	600

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Adjustment Process

- I[Unplanned] <0 : 의도되지 않은 재고의 감소 발생: 초과수요 ➔ 생산량 증가 → rGDP 증가 ➔ …
- I[Unplanned] =0 : I[Planned]유지
- I[Unplanned] >0 : 의도되지 않은 재고의 증가 발생: 과잉공급 ➔ 생산량 감소 → rGDP감소 ➔ …

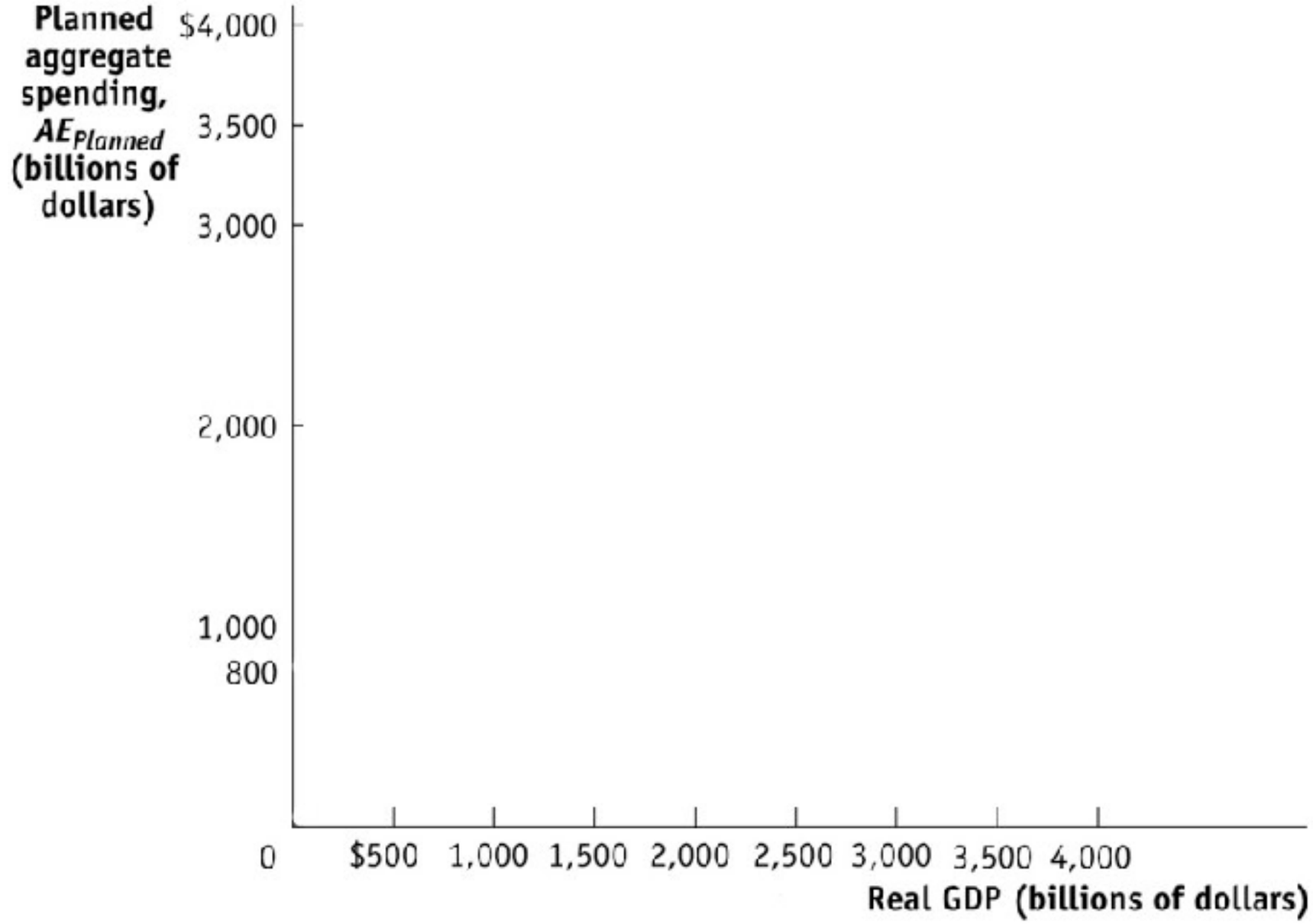
소득-지출 균형 GDP: Y*

Income-Expenditure Equilibrium GDP: Y*

- GDP와 AE[Planned]가 같은 GDP수준
- 이때의 I[Unplanned] = 0
- $Y < Y^*$:
  과소생산 → I[Planned] ↑ → Y ↑
- $Y > Y^*$:
  과잉생산 → I[Planned] ↓ → Y ↓

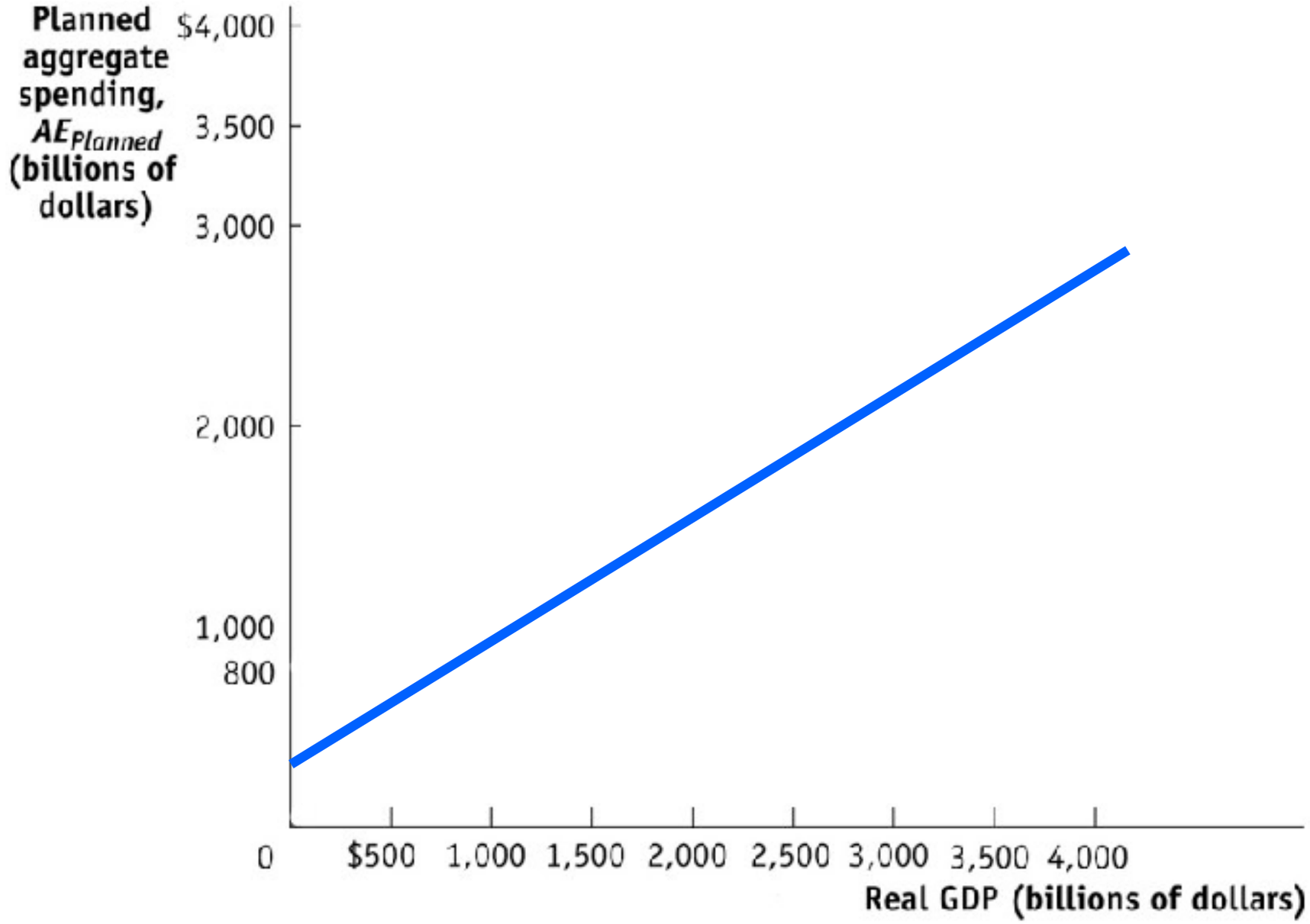
Keynesian Cross:

Graphical Expression



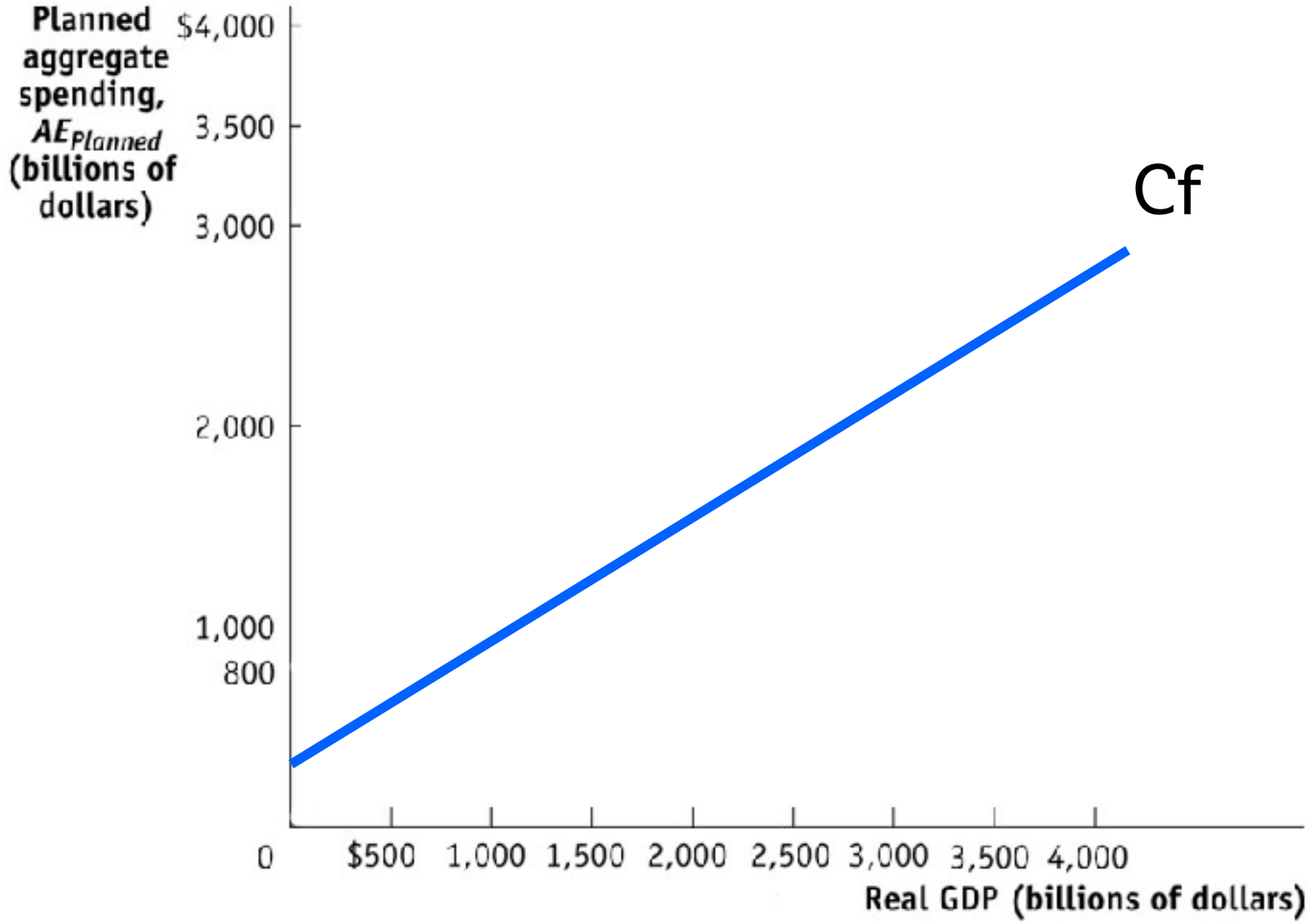
Keynesian Cross:

Graphical Expression



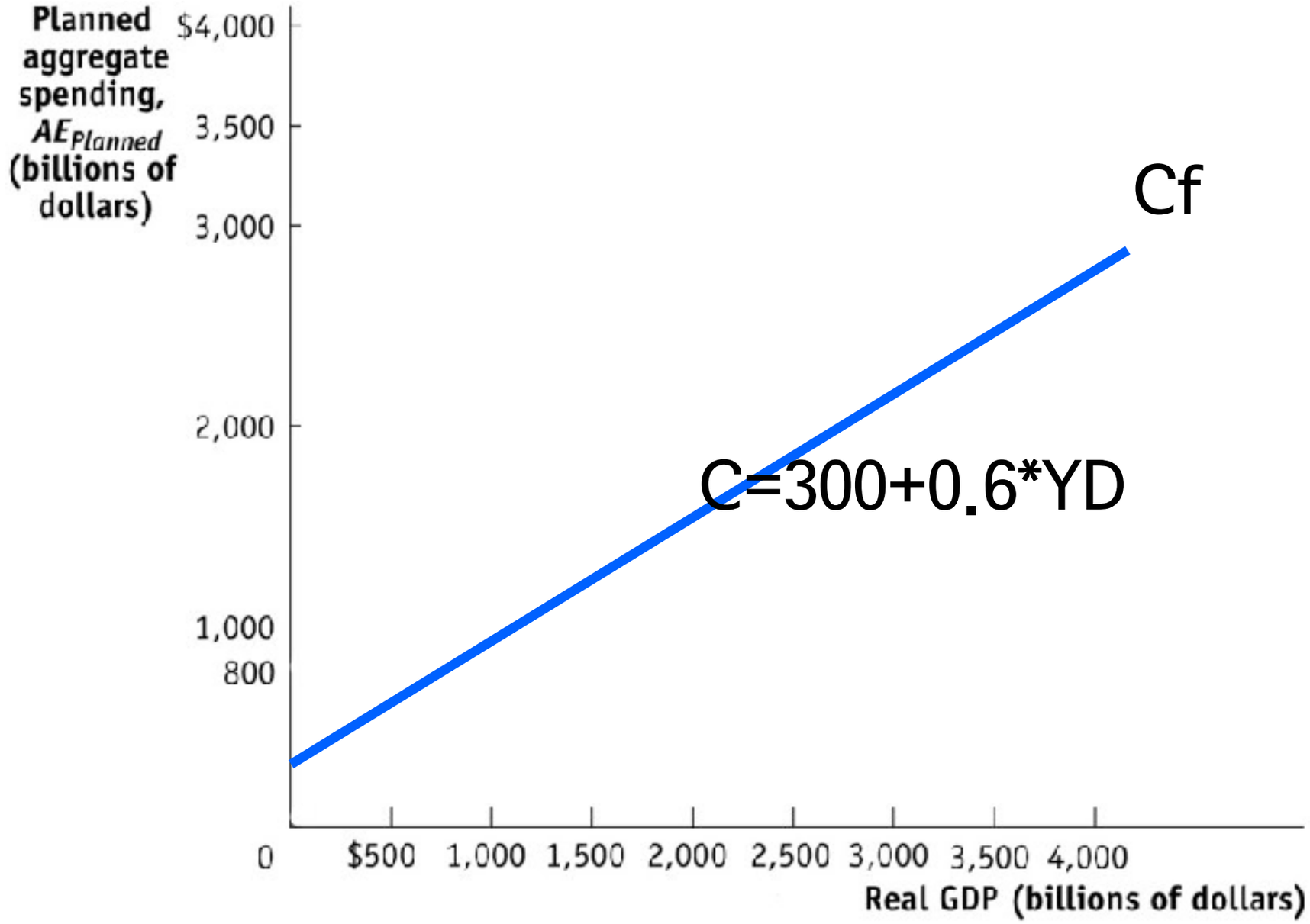
Keynesian Cross:

Graphical Expression



Keynesian Cross:

Graphical Expression



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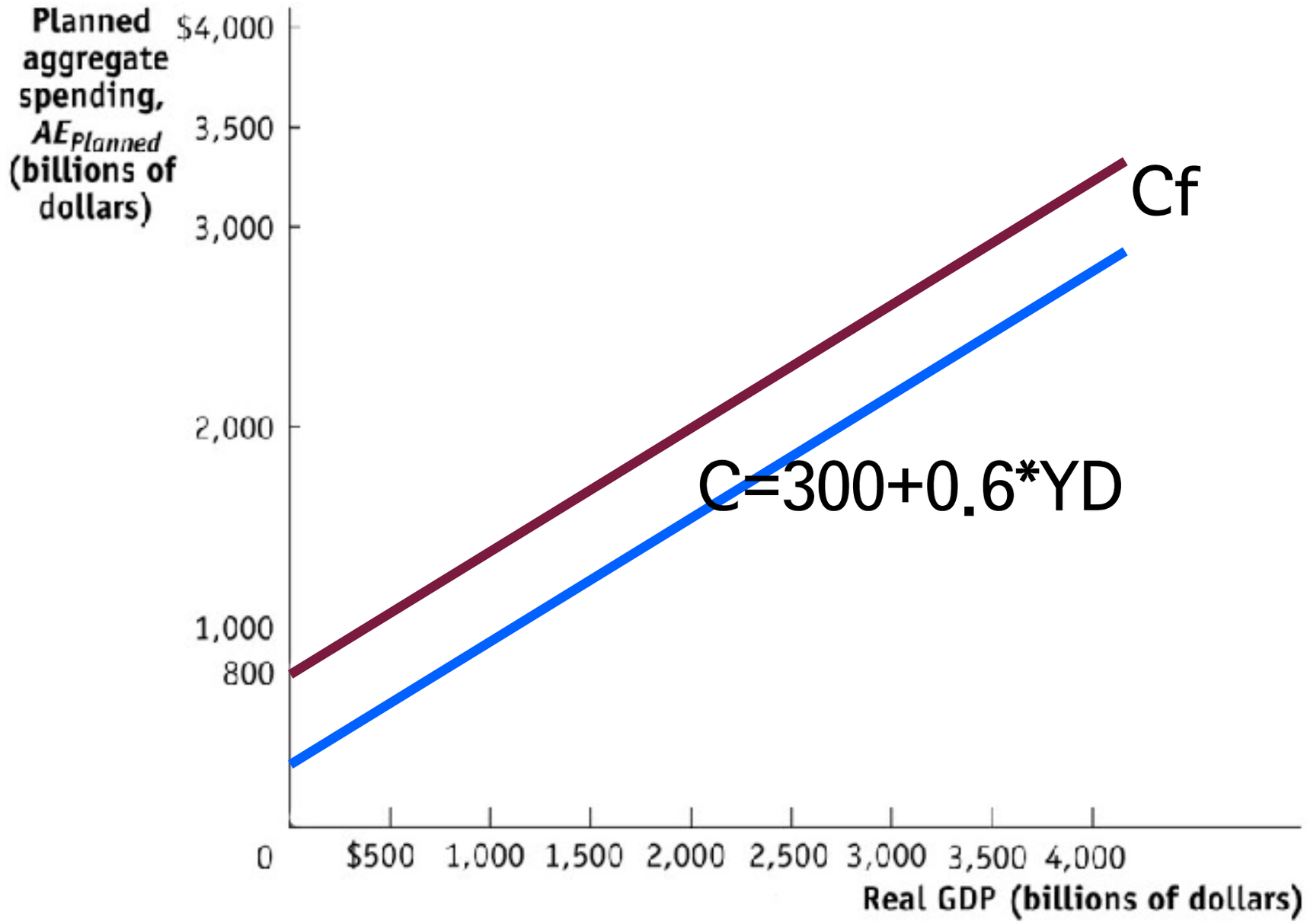
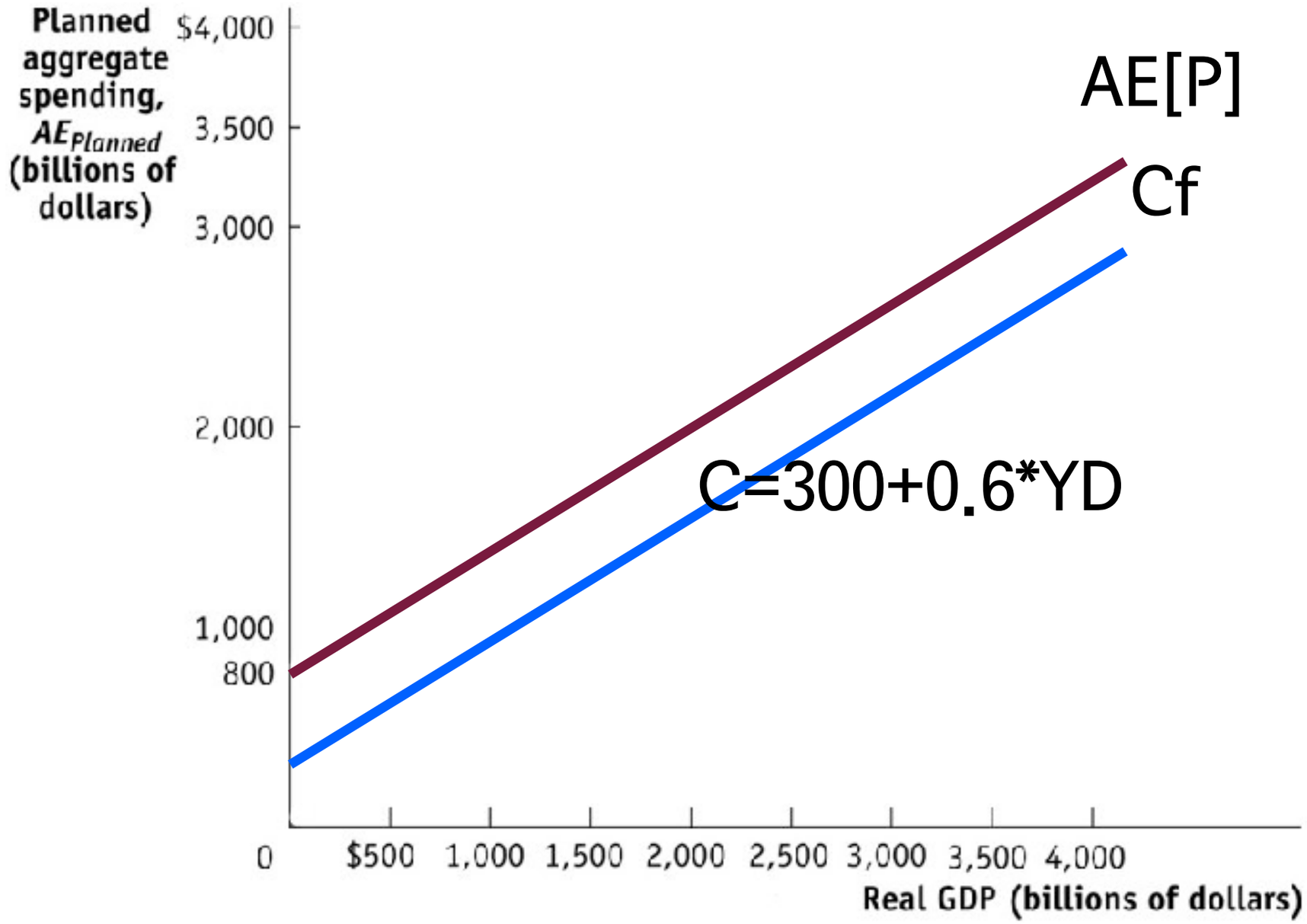
Keynesian Cross:

Graphical Expression



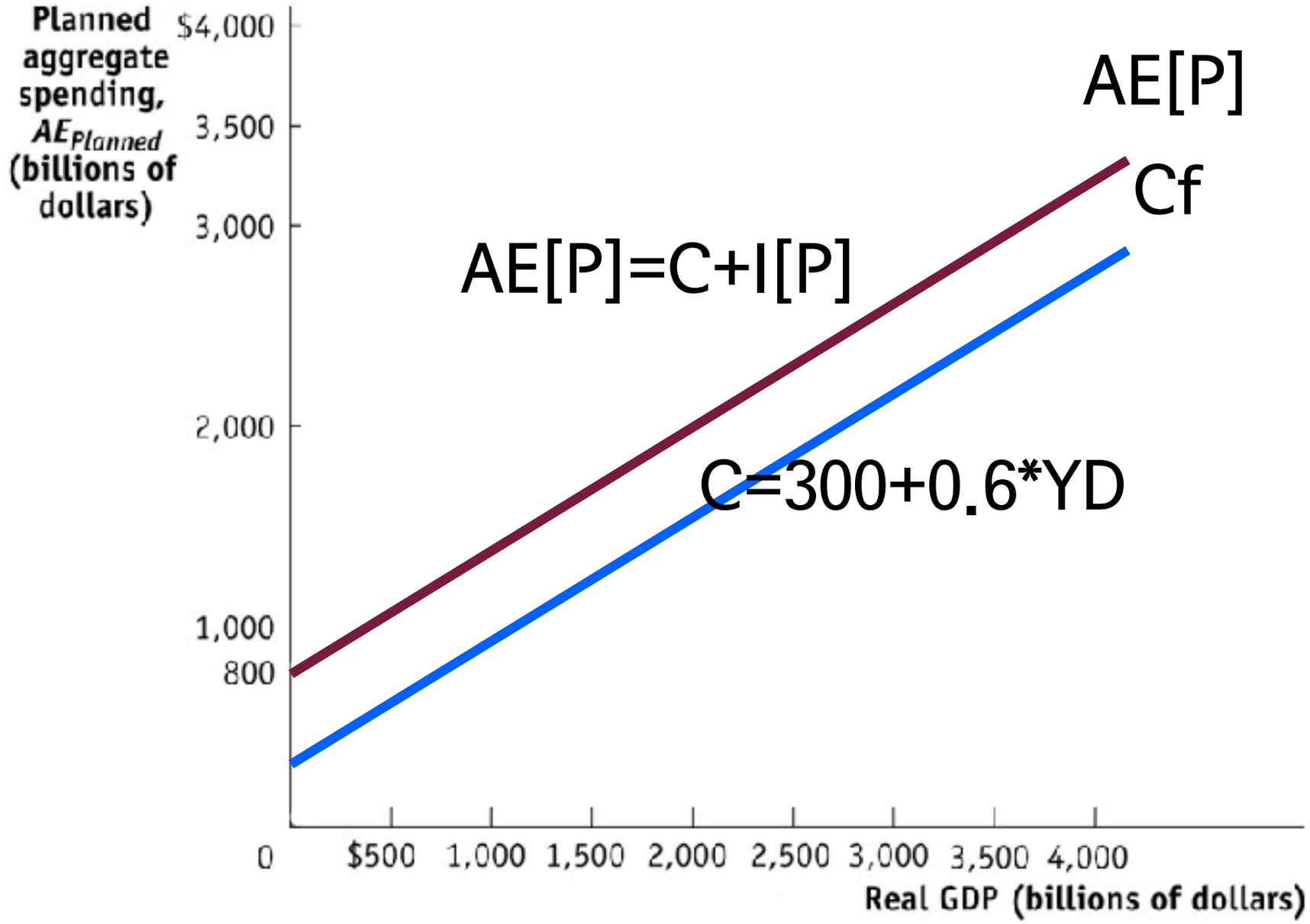
Keynesian Cross:

Graphical Expression



Keynesian Cross:

Graphical Expression



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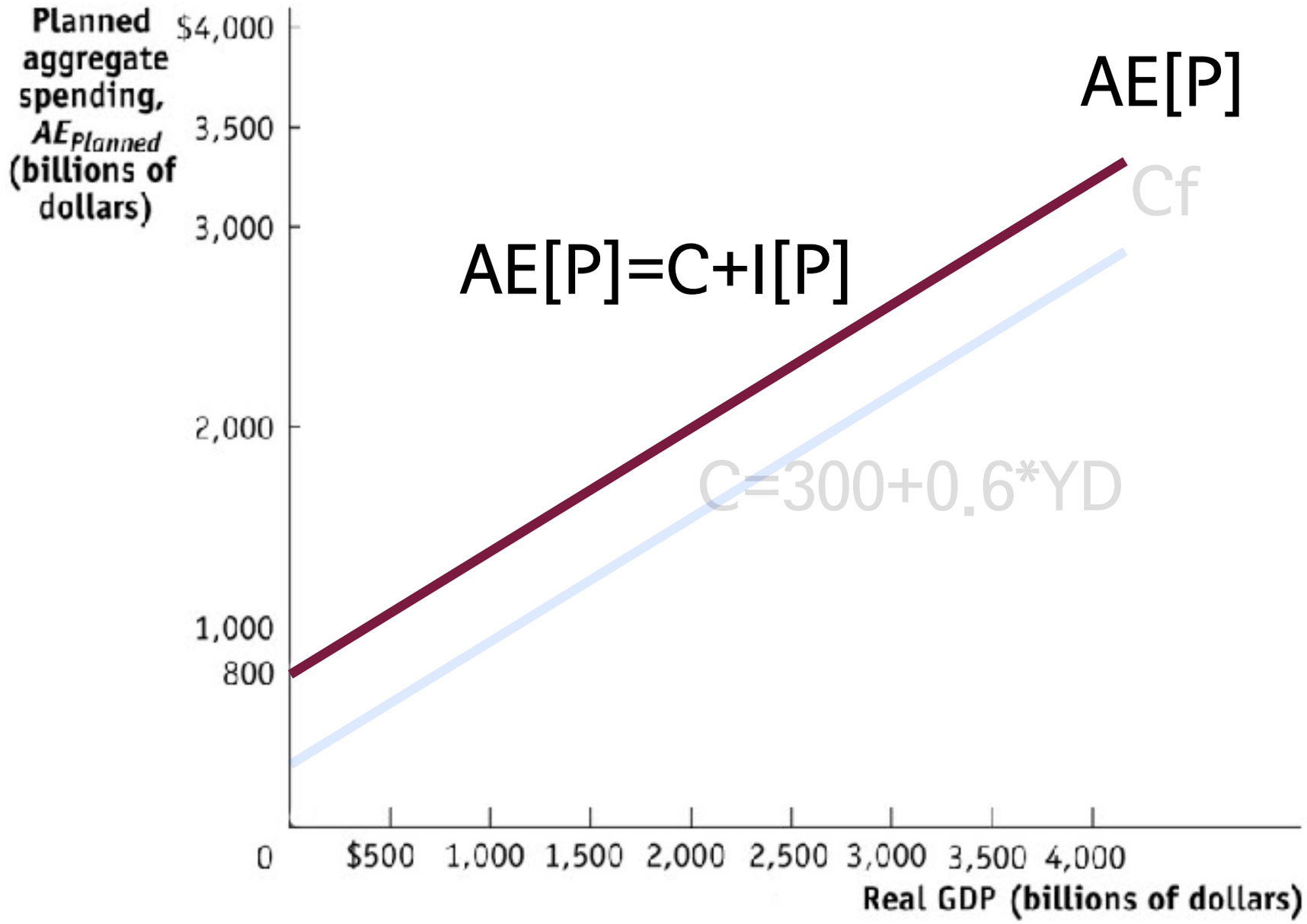
Keynesian Cross:

Graphical Expression



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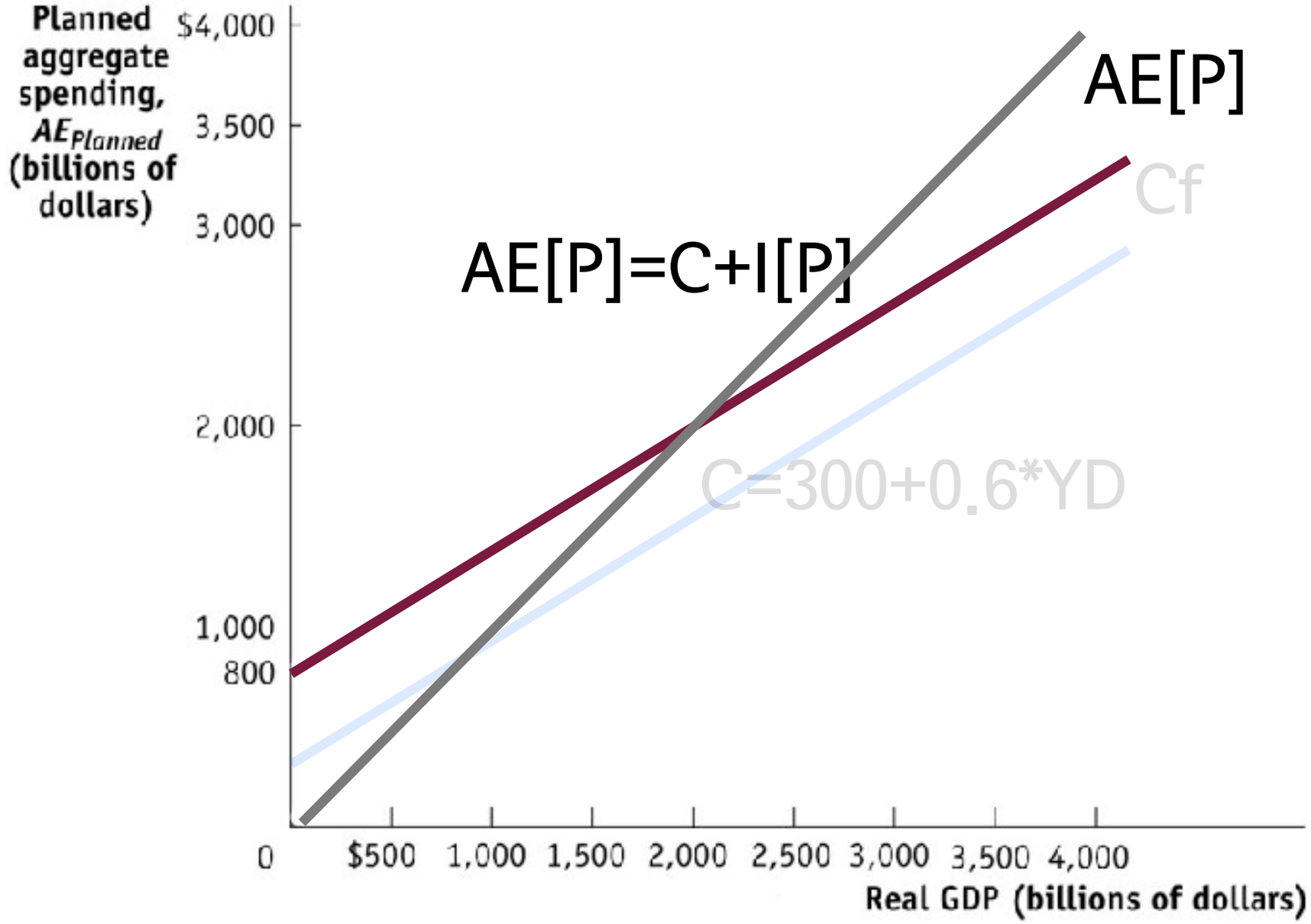
Keynesian Cross:

Graphical Expression



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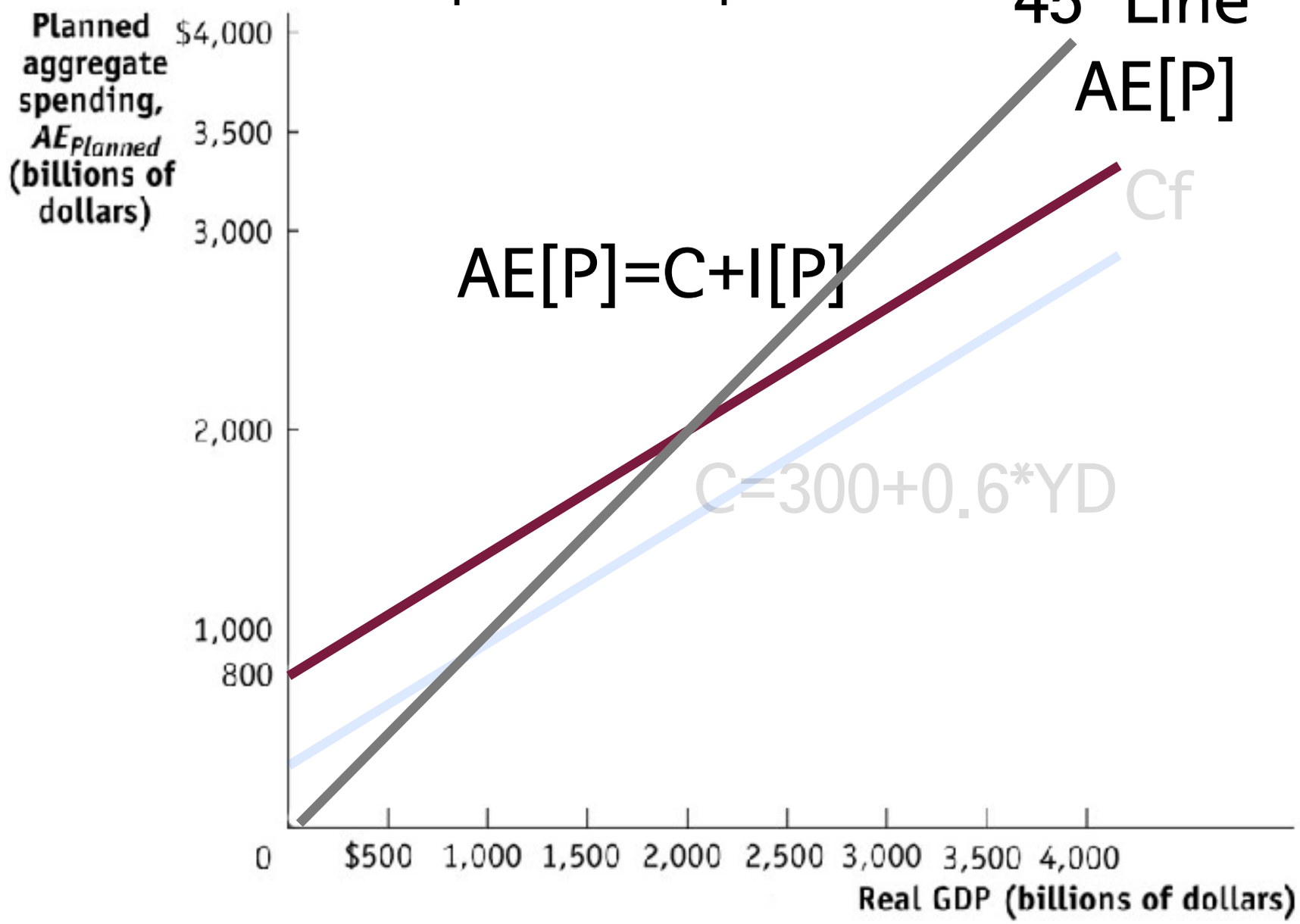
Keynesian Cross:

Graphical Expression



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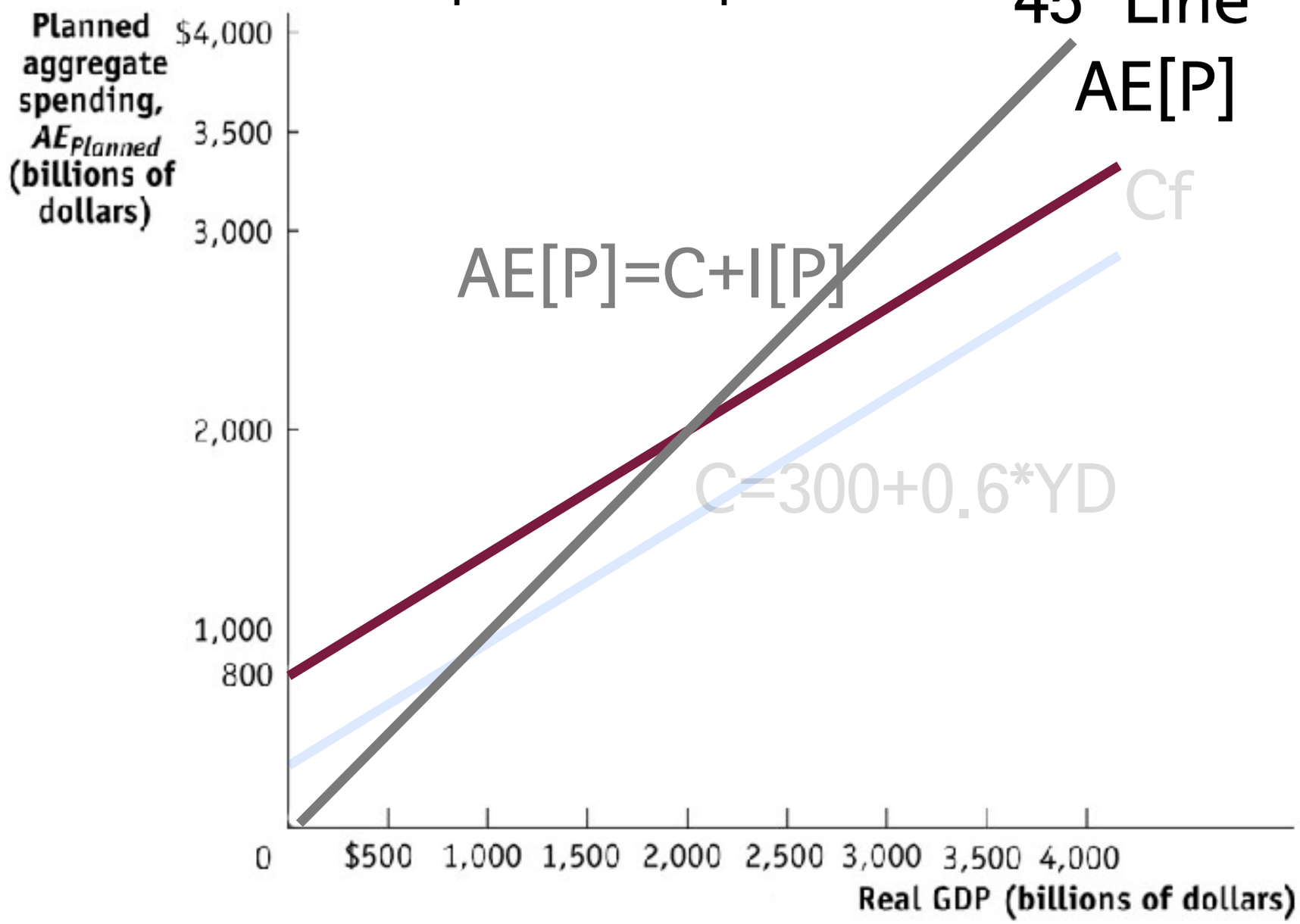
Keynesian Cross:

Graphical Expression



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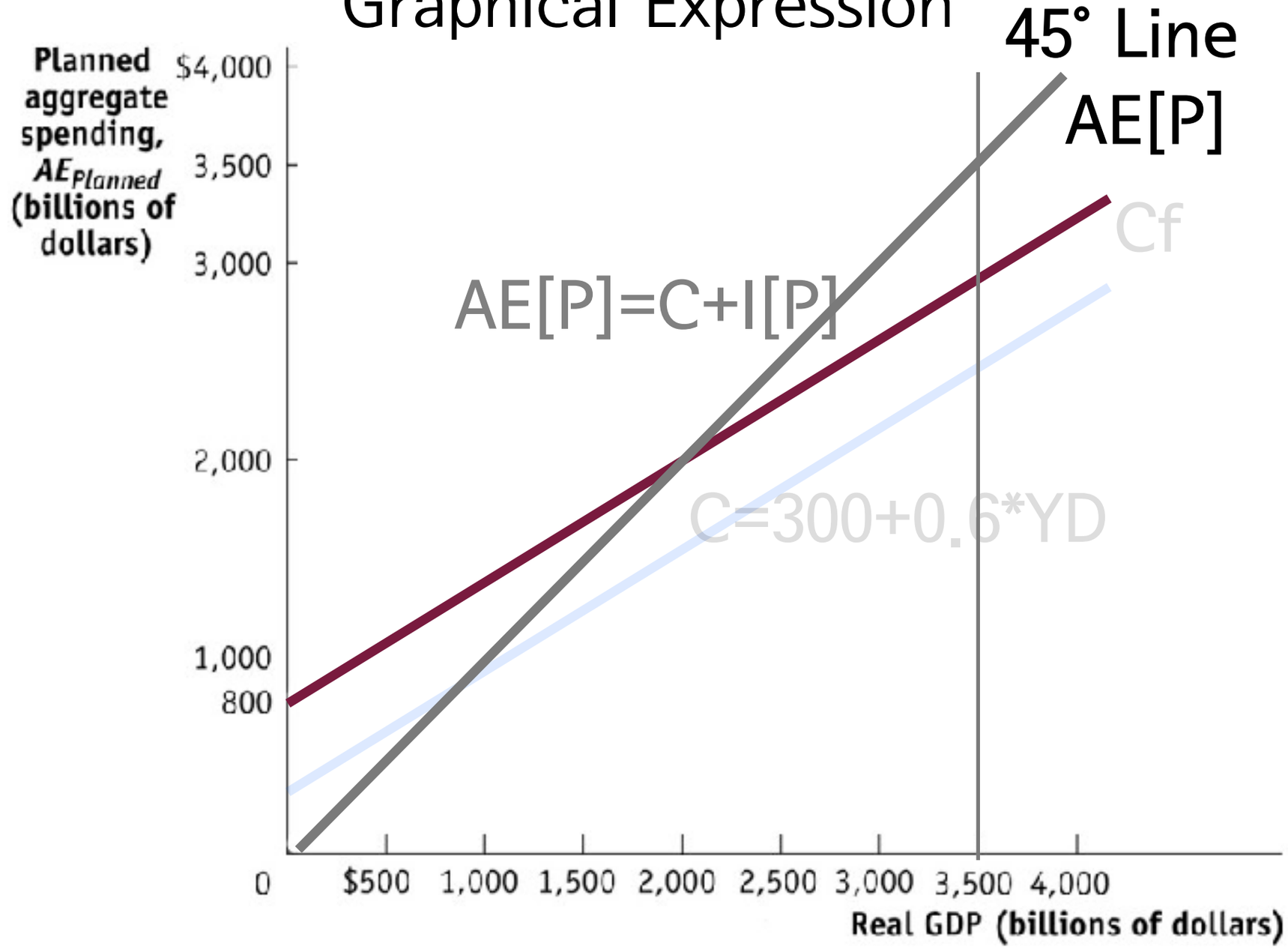
Keynesian Cross:

Graphical Expression



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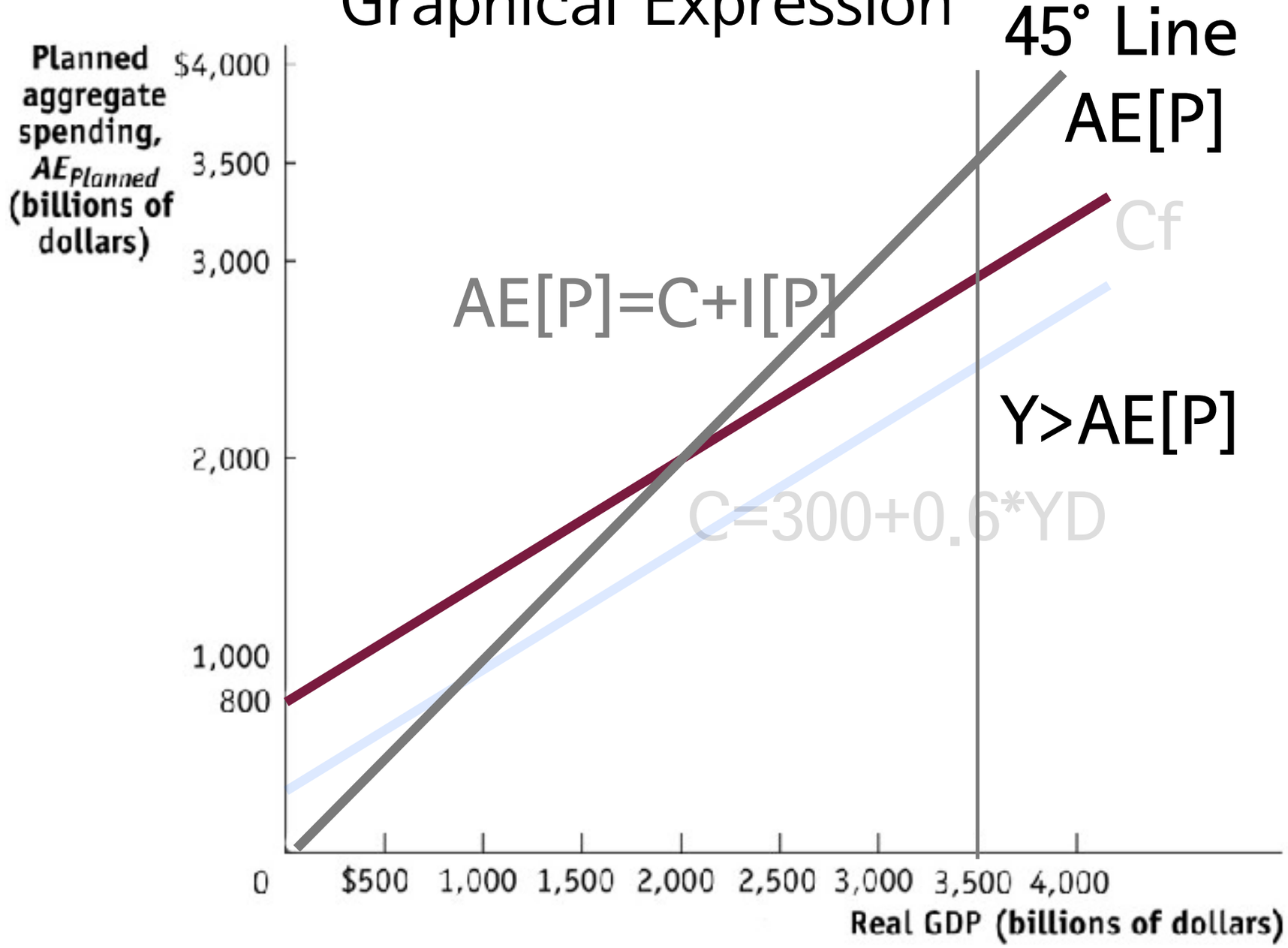
Keynesian Cross:

Graphical Expression



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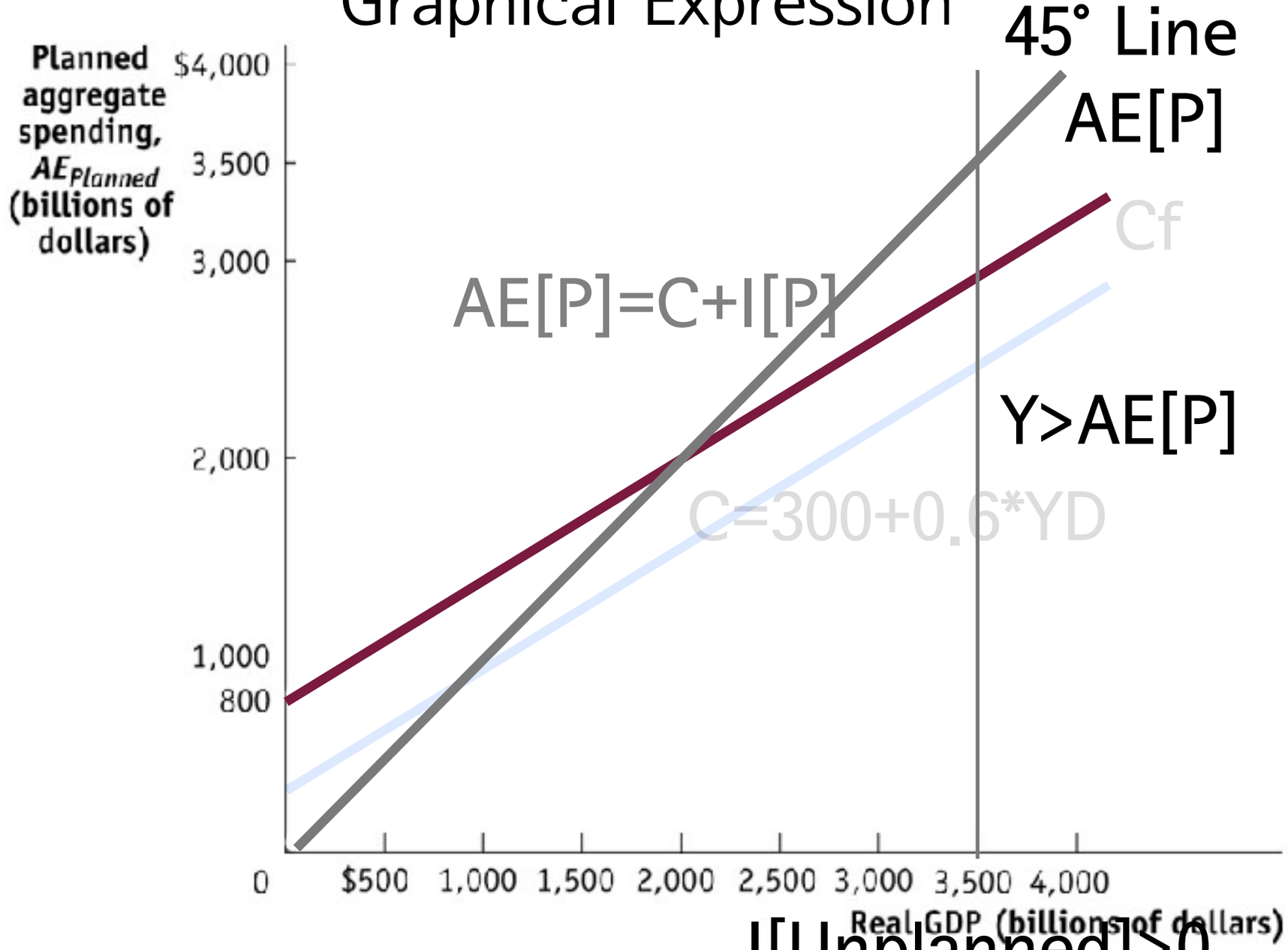
Keynesian Cross:

Graphical Expression



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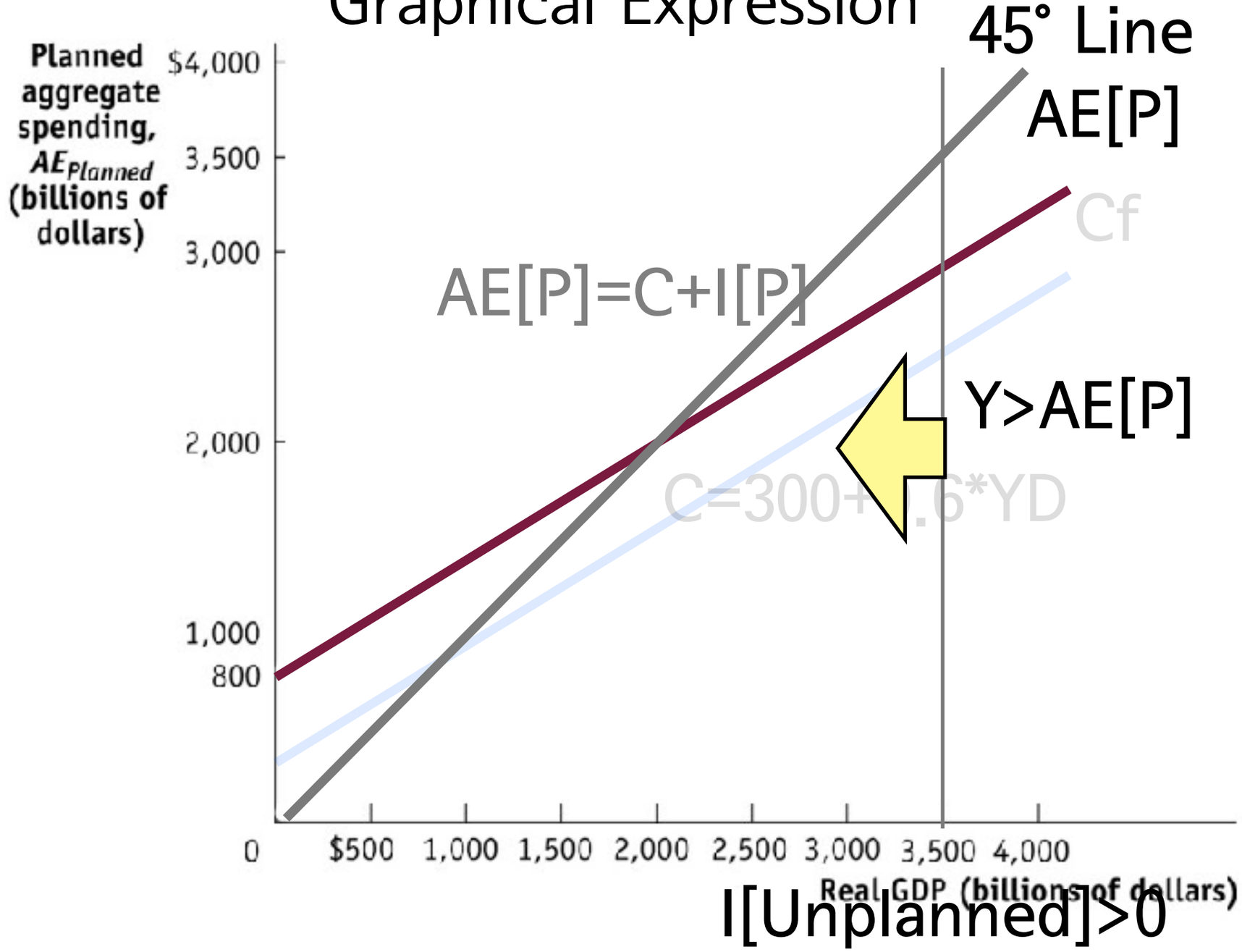
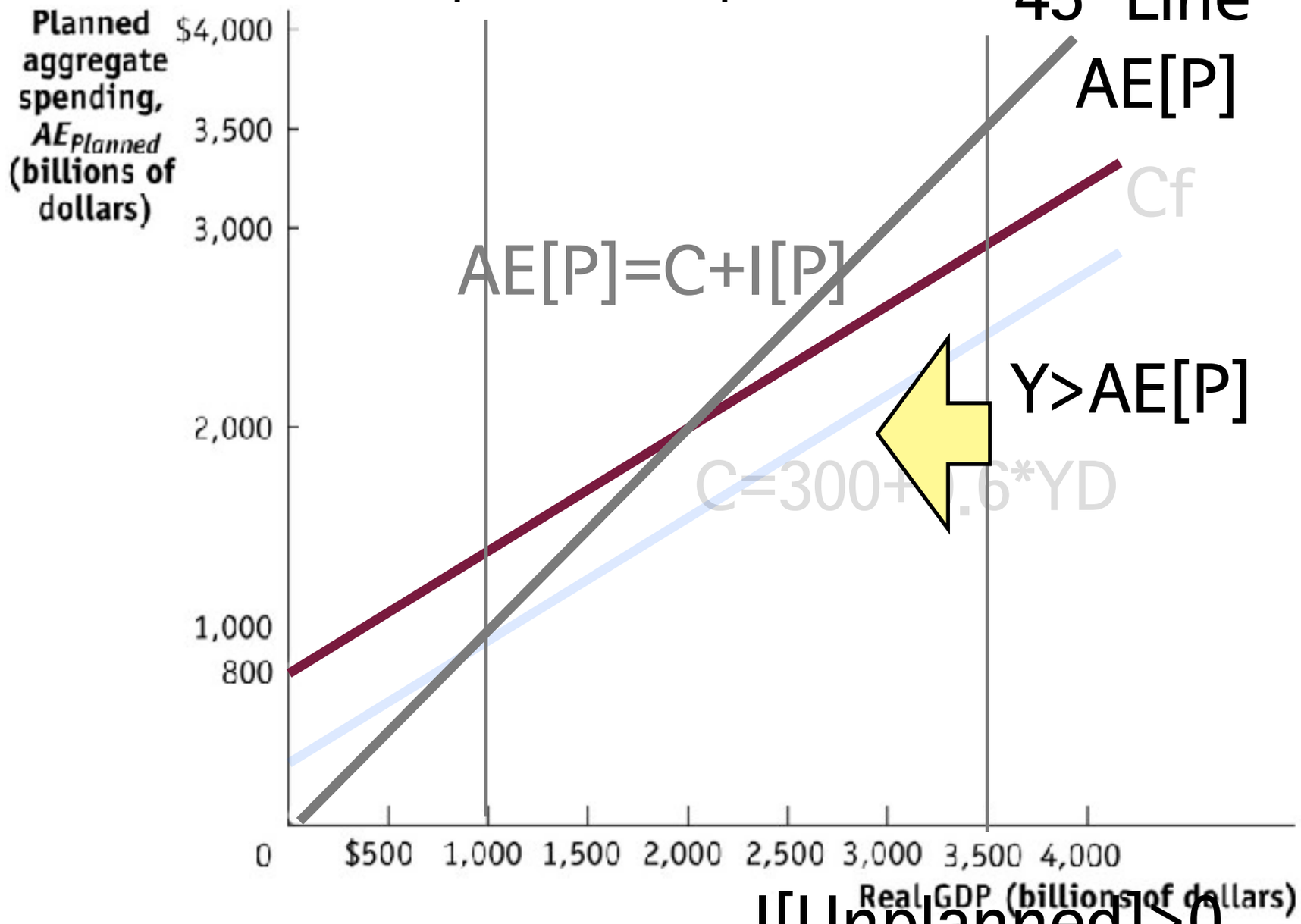
Graphical Expression



Keynesian Cross:

Graphical Expression



I[Unplanned]>0

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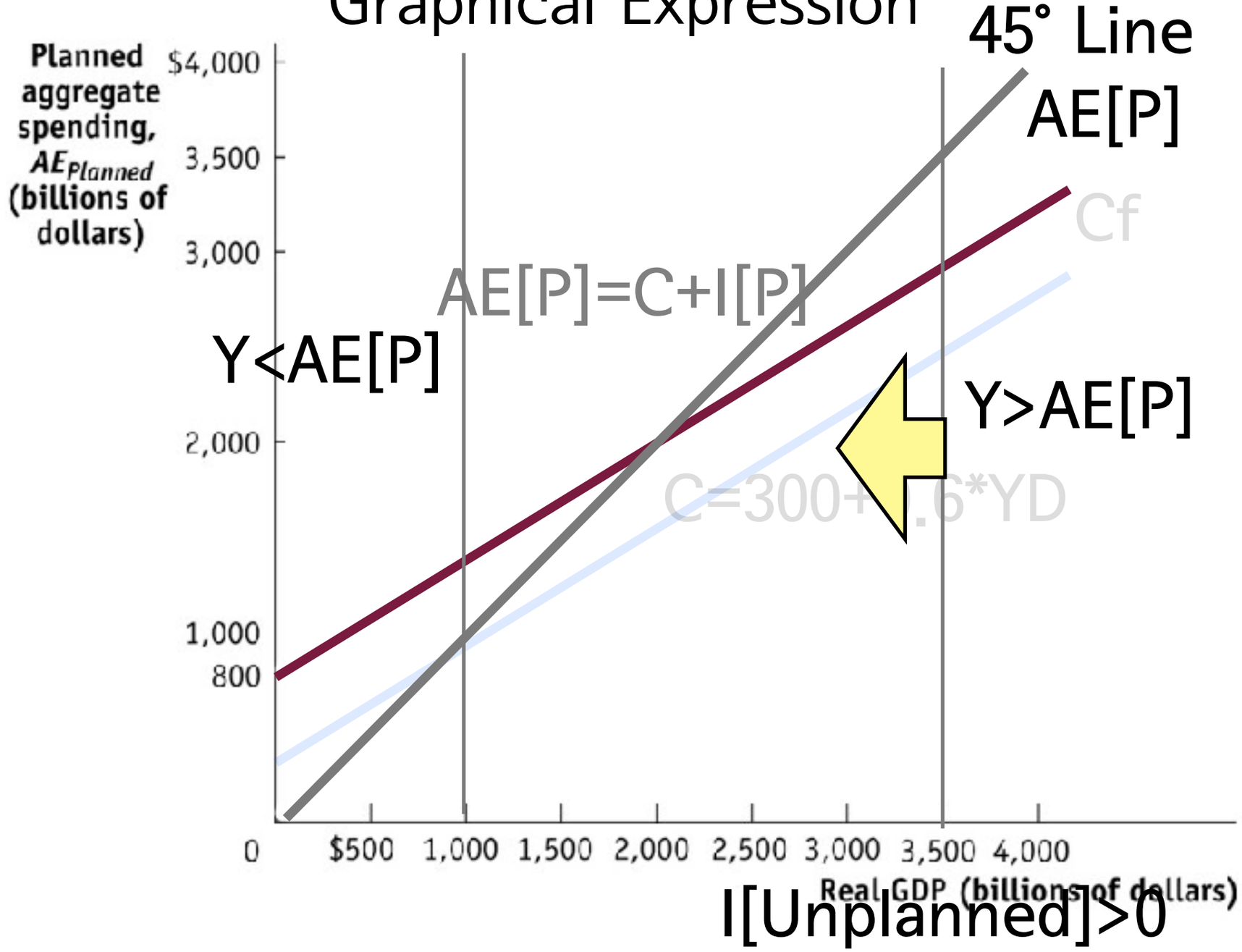
Keynesian Cross:

Graphical Expression



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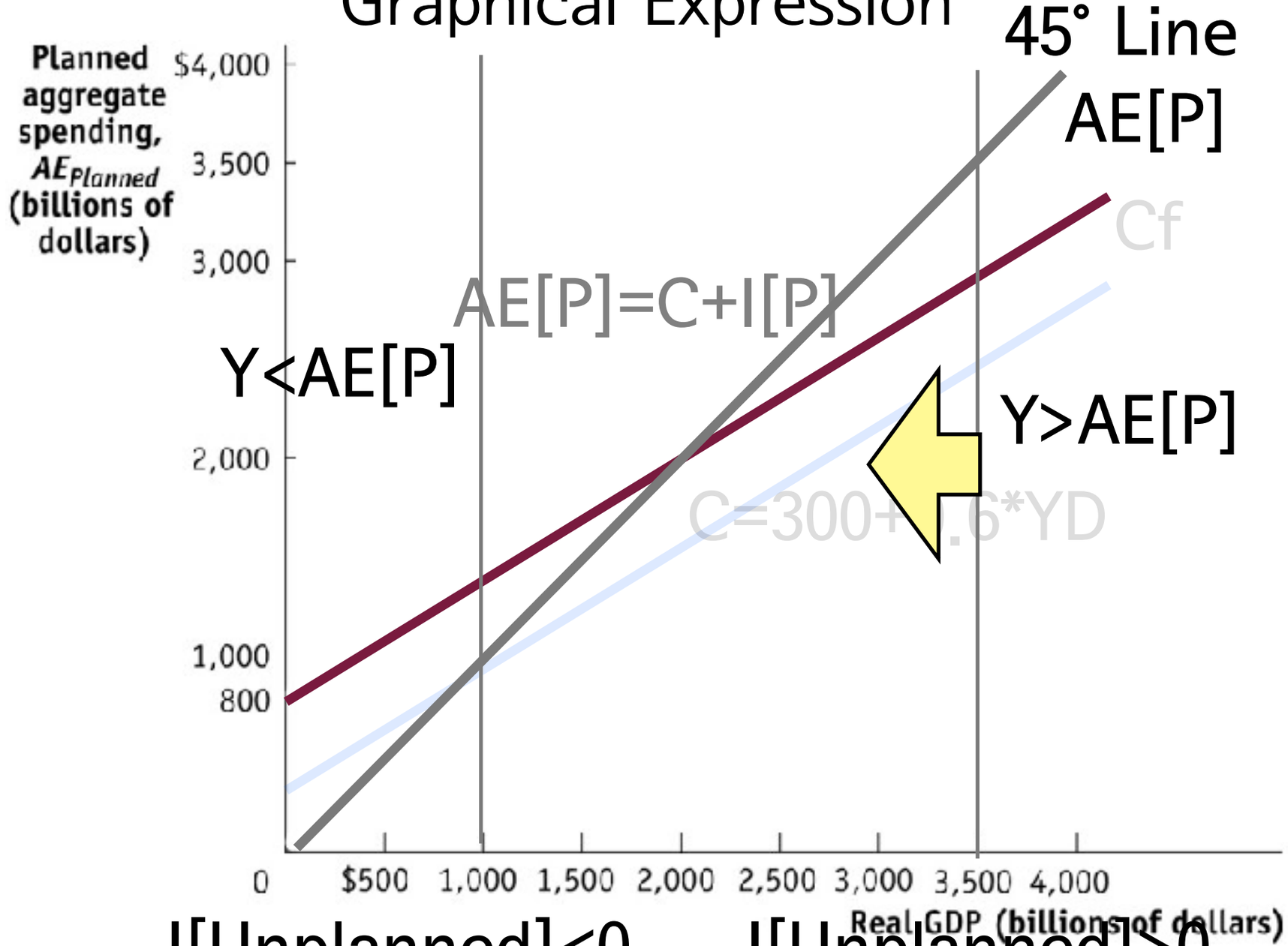
Keynesian Cross:

Graphical Expression



I[Unplanned]<0 I[Unplanned]>0

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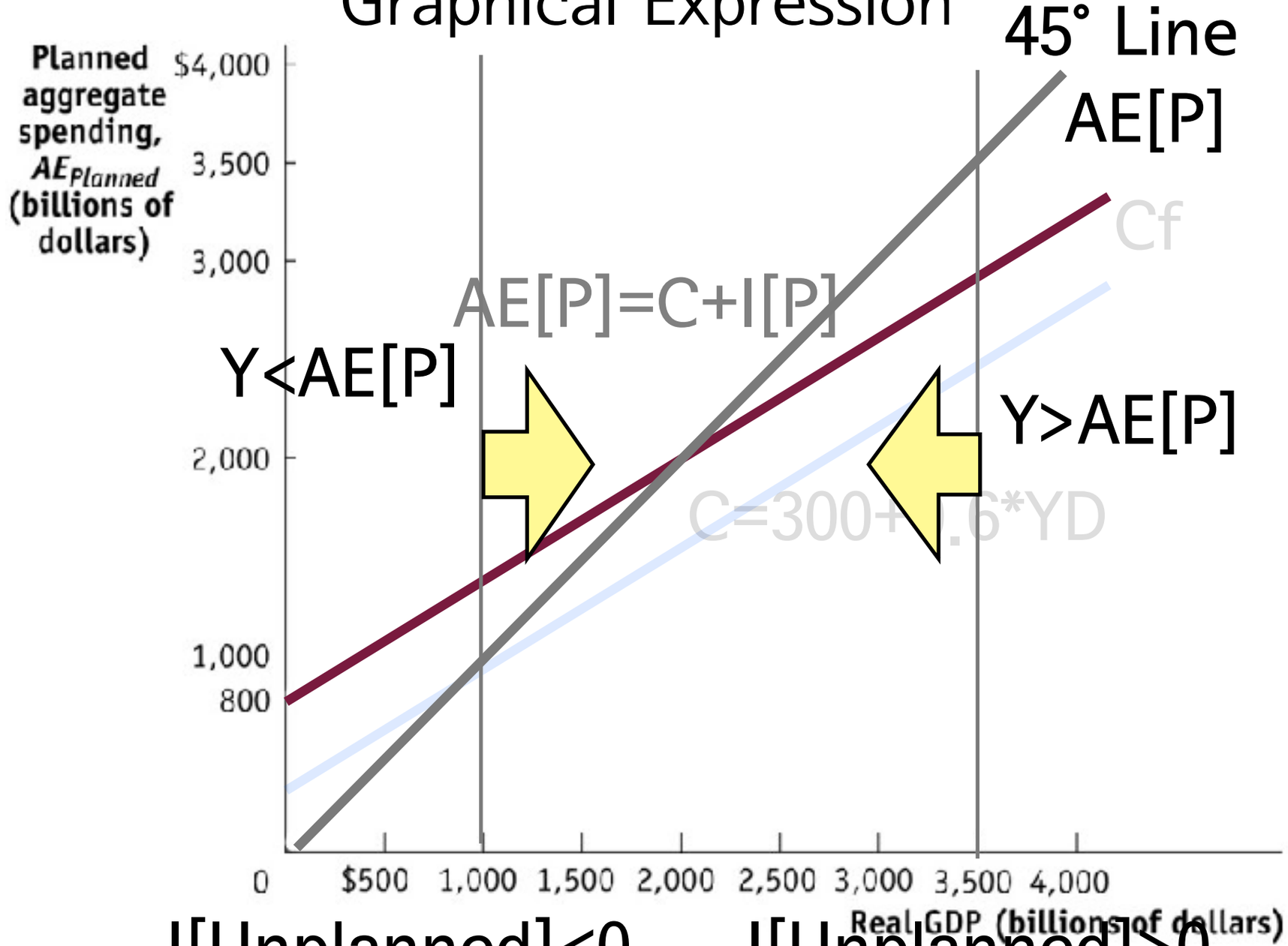
Graphical Expression



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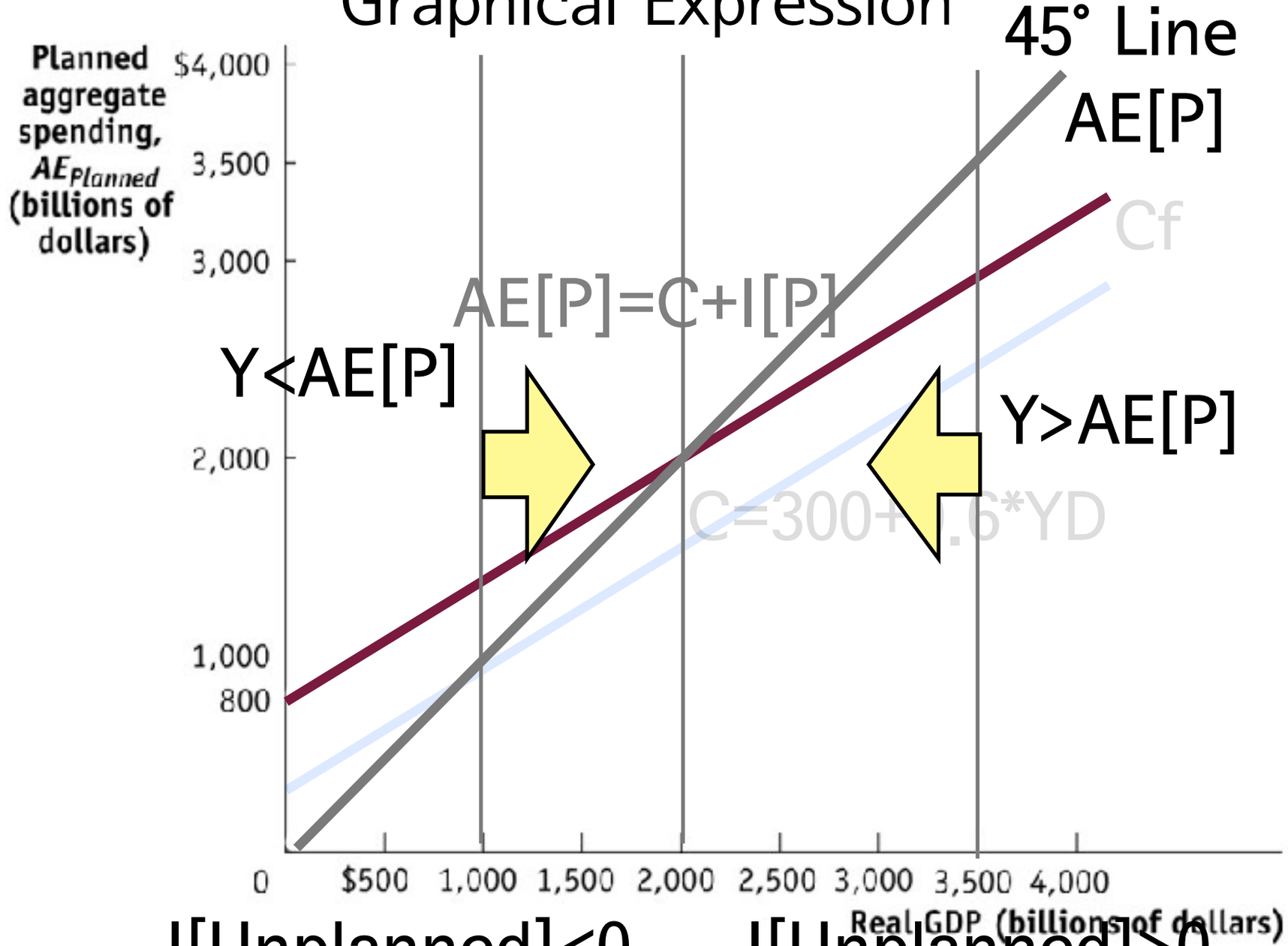

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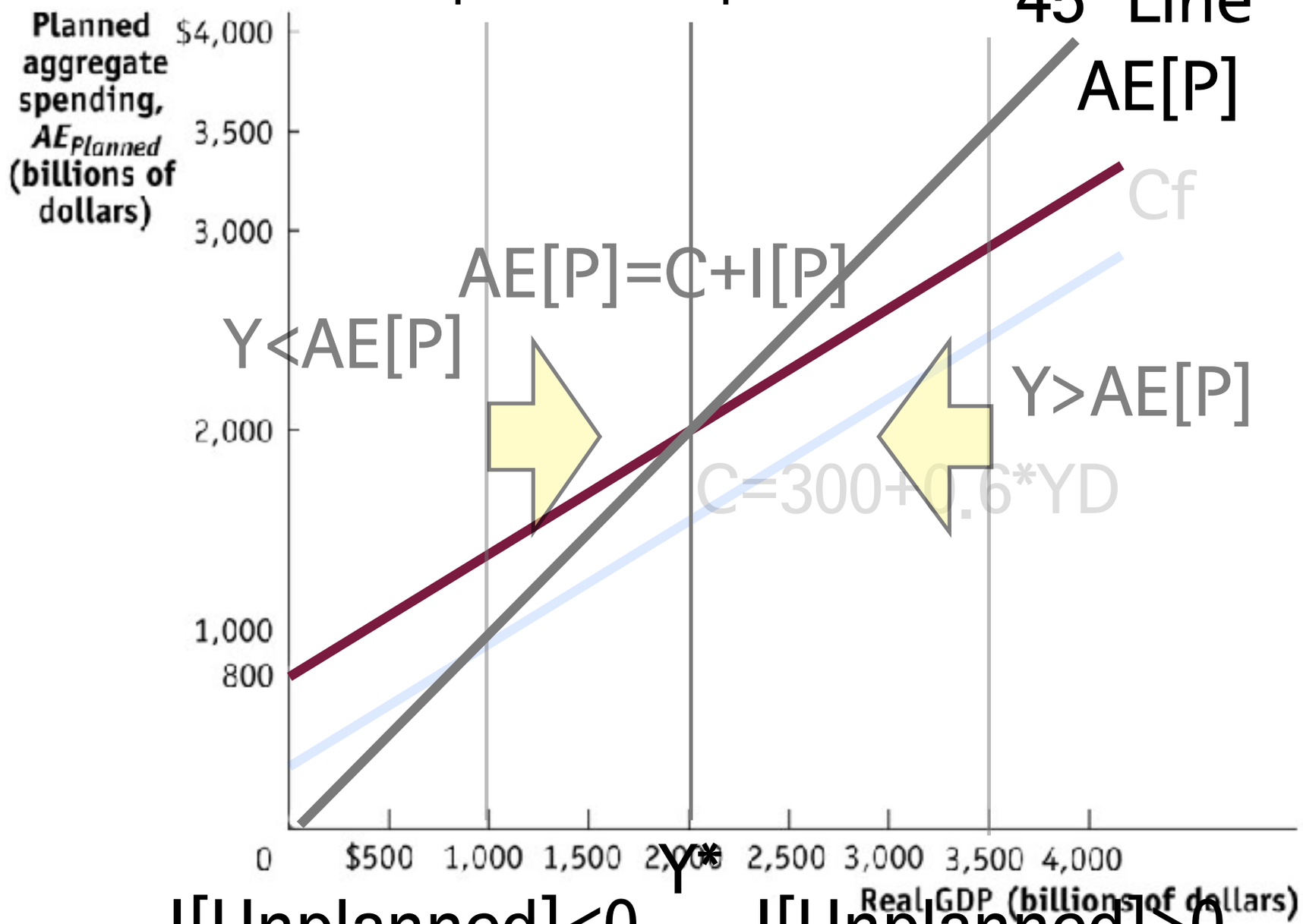
Graphical Expression



I[Unplanned]<0 I[Unplanned]>0

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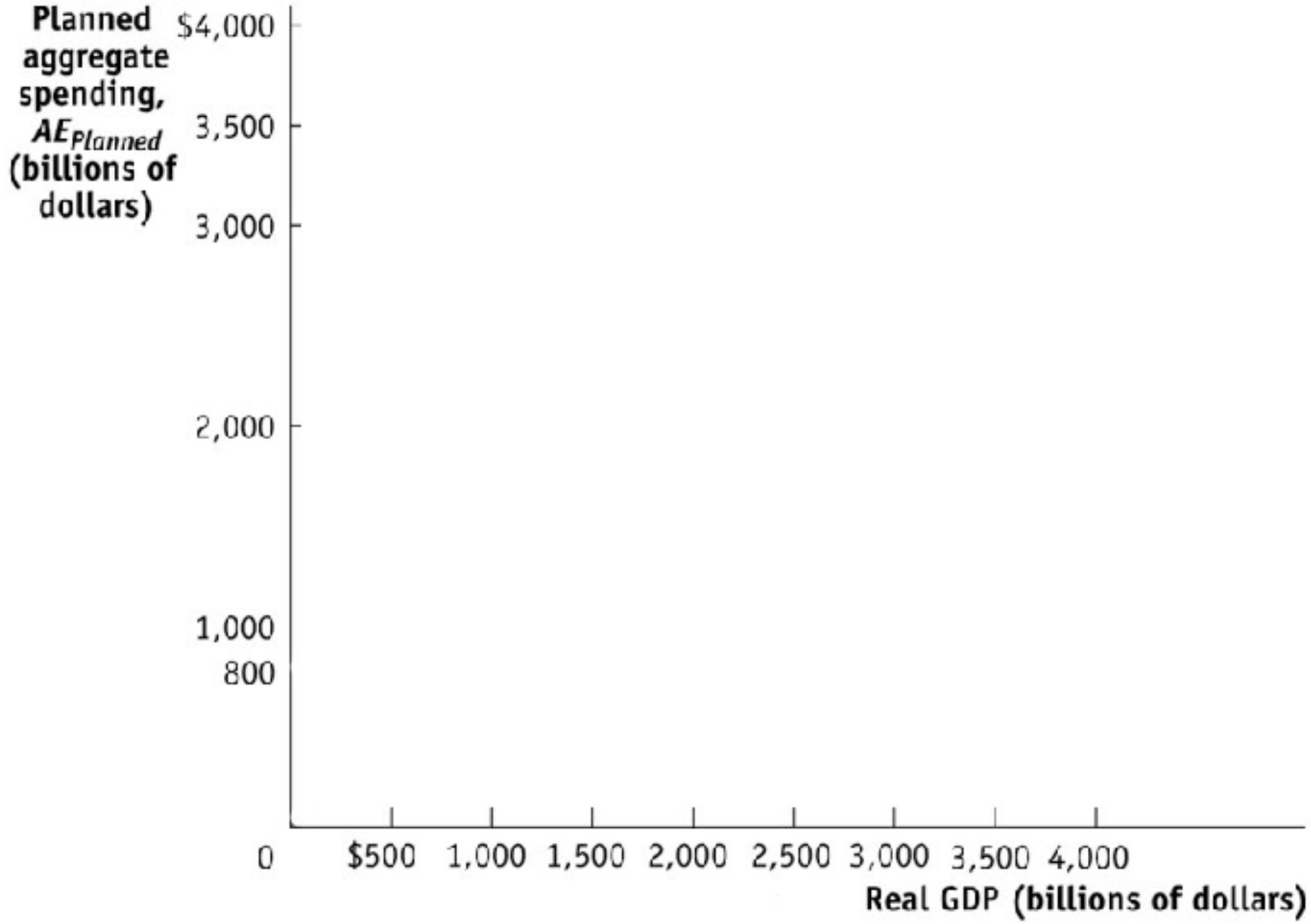
Income-Expenditure Eqbm. vs. Short-run Macro. Eqbm. (AS-AD)

- 소득지출균형: Constant Price 를 전제
  - P가 상수
- 단기균형: Flexible Price 를 전제
  - P가 변수
- 소득지출균형의 조정은 AD곡선의 움직임 중 재고 조정과정에 해당됨

재고조정의 승수과정

Multiplier Process of Adjusting Inventory



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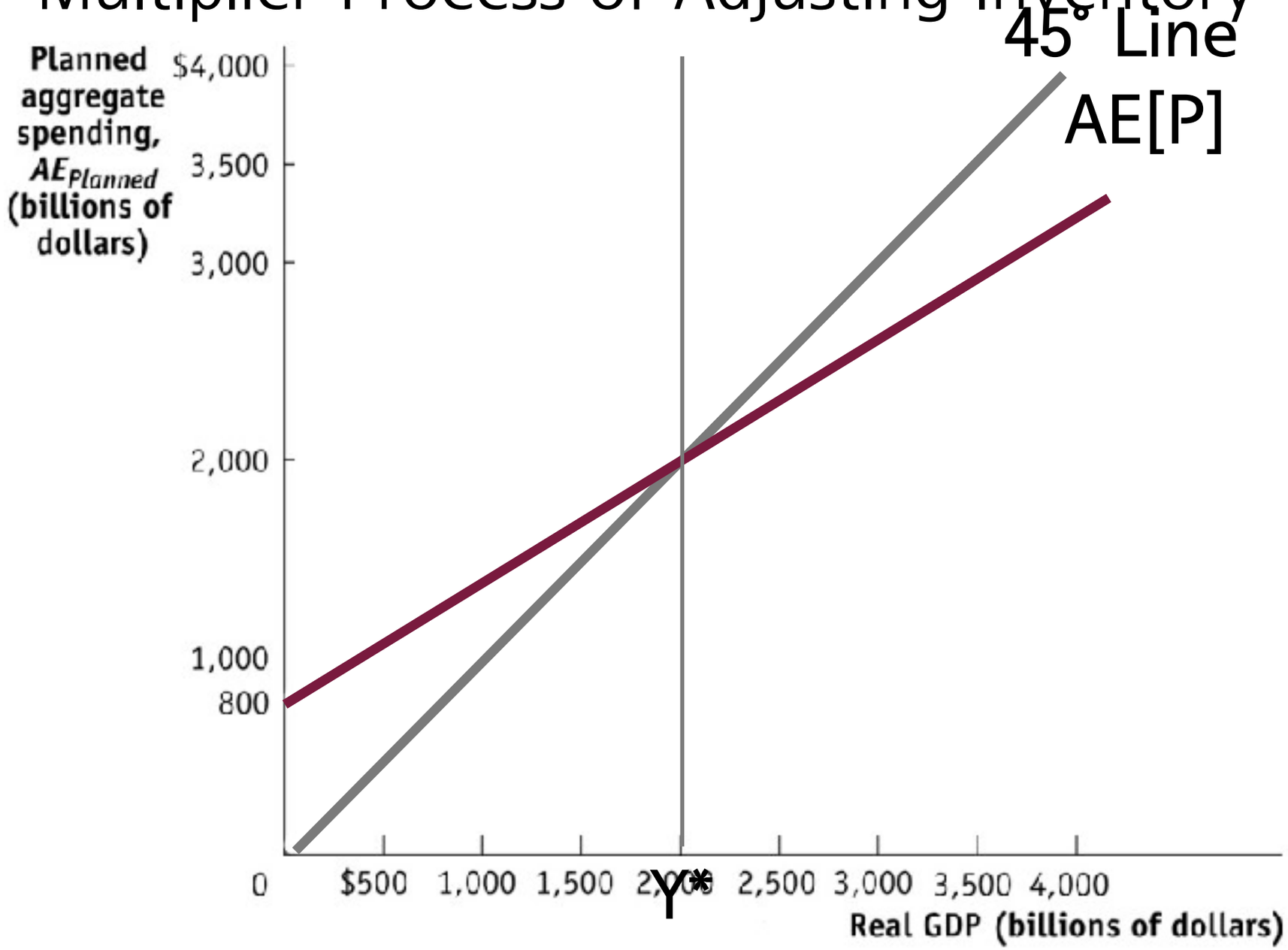
재고조정의 승수과정

Multiplier Process of Adjusting Inventory



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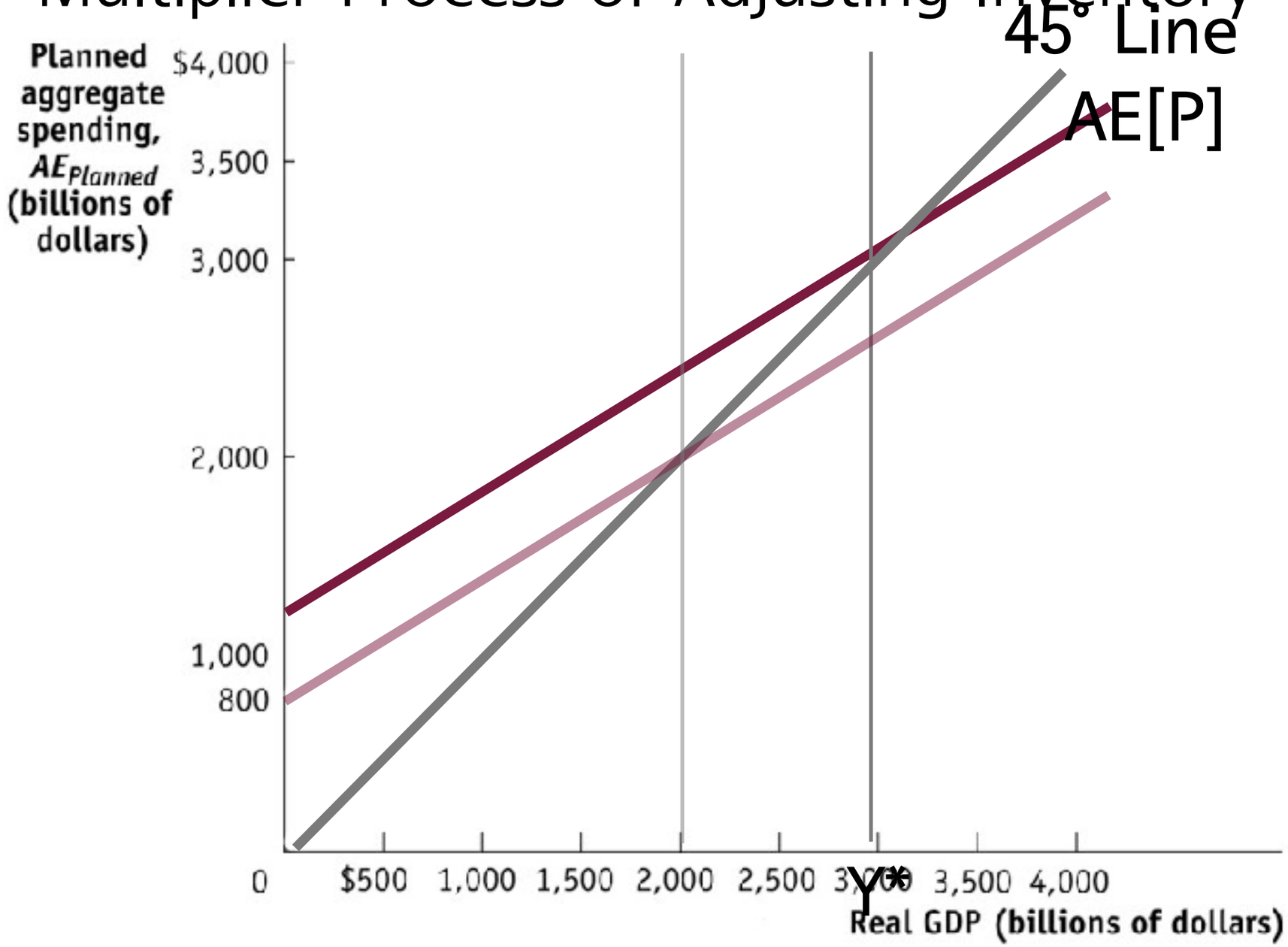
재고조정의 승수과정

Multiplier Process of Adjusting Inventory



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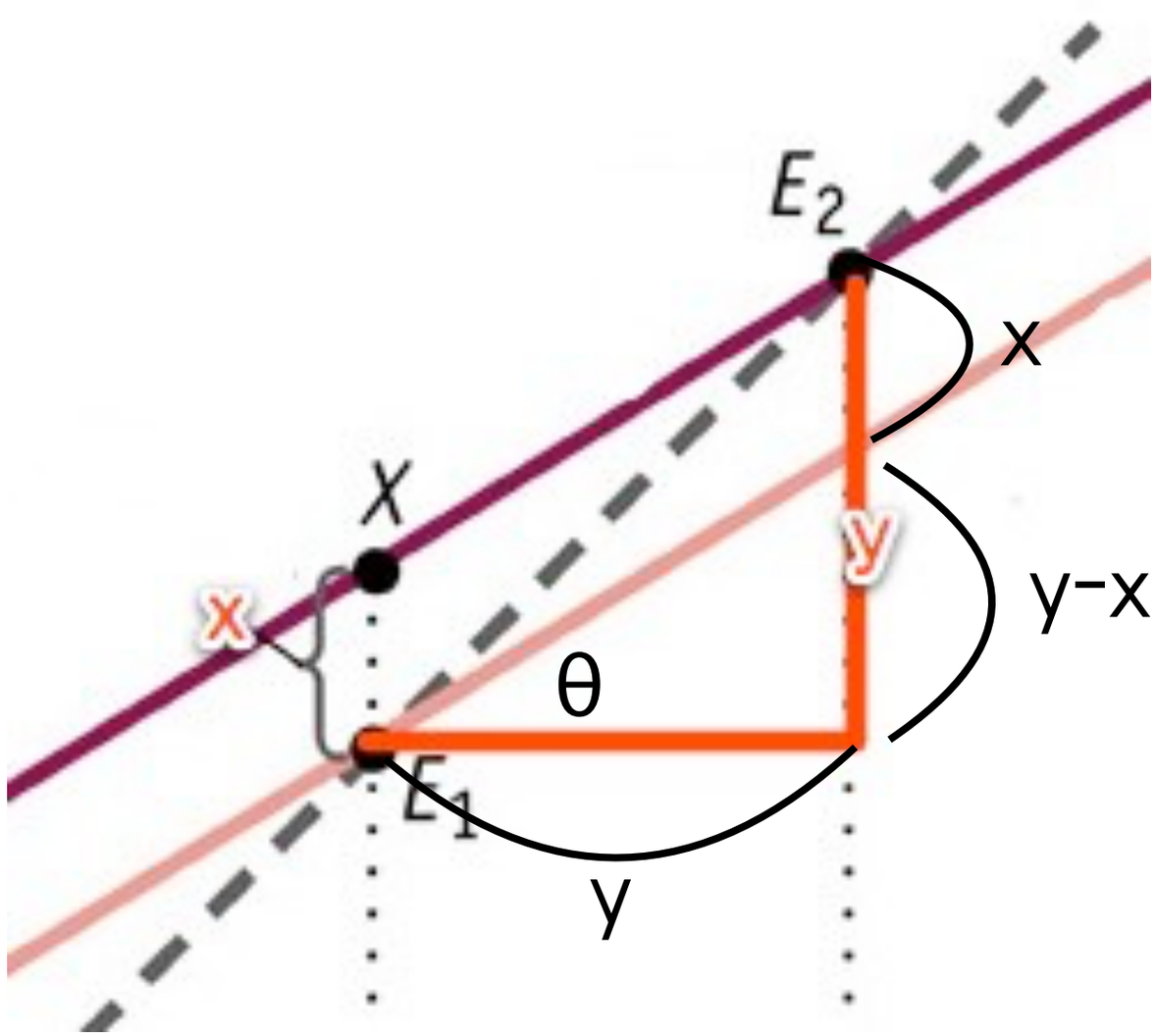
승수계산
Calculating Multiplier



$$\Delta Y^* = \text{승수} \times \Delta AAE_{Planned}$$
$$= \frac{1}{1-MPC} \times \Delta AAE_{Planned}$$

- tan(θ)=MPC = (y-x)/y
- y-x = y*MPC
- y = 1/(1-MPC)*x

Multiplier Process and Movement of AD cv.

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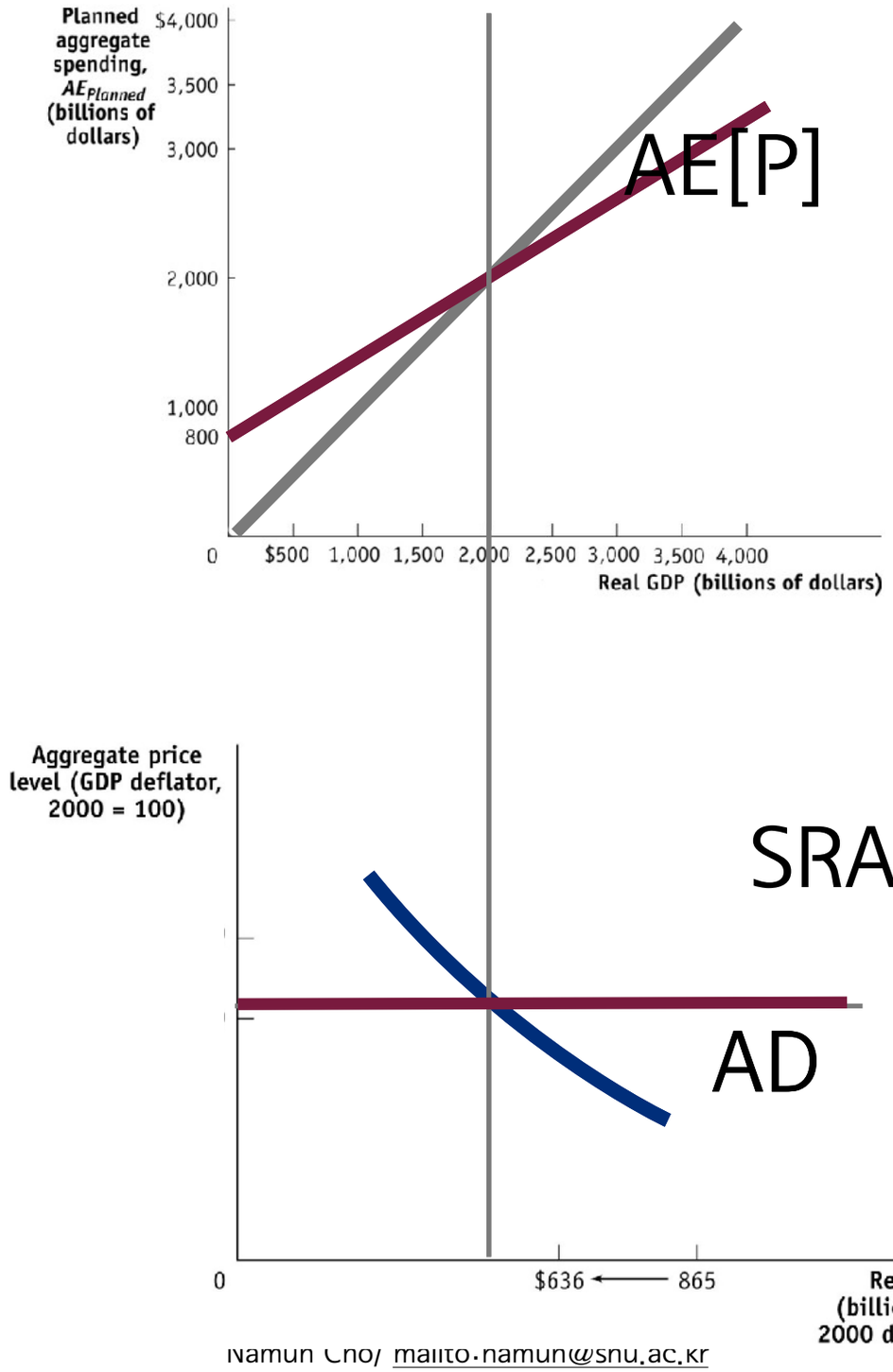
Multiplier Process and Movement of AD cv.



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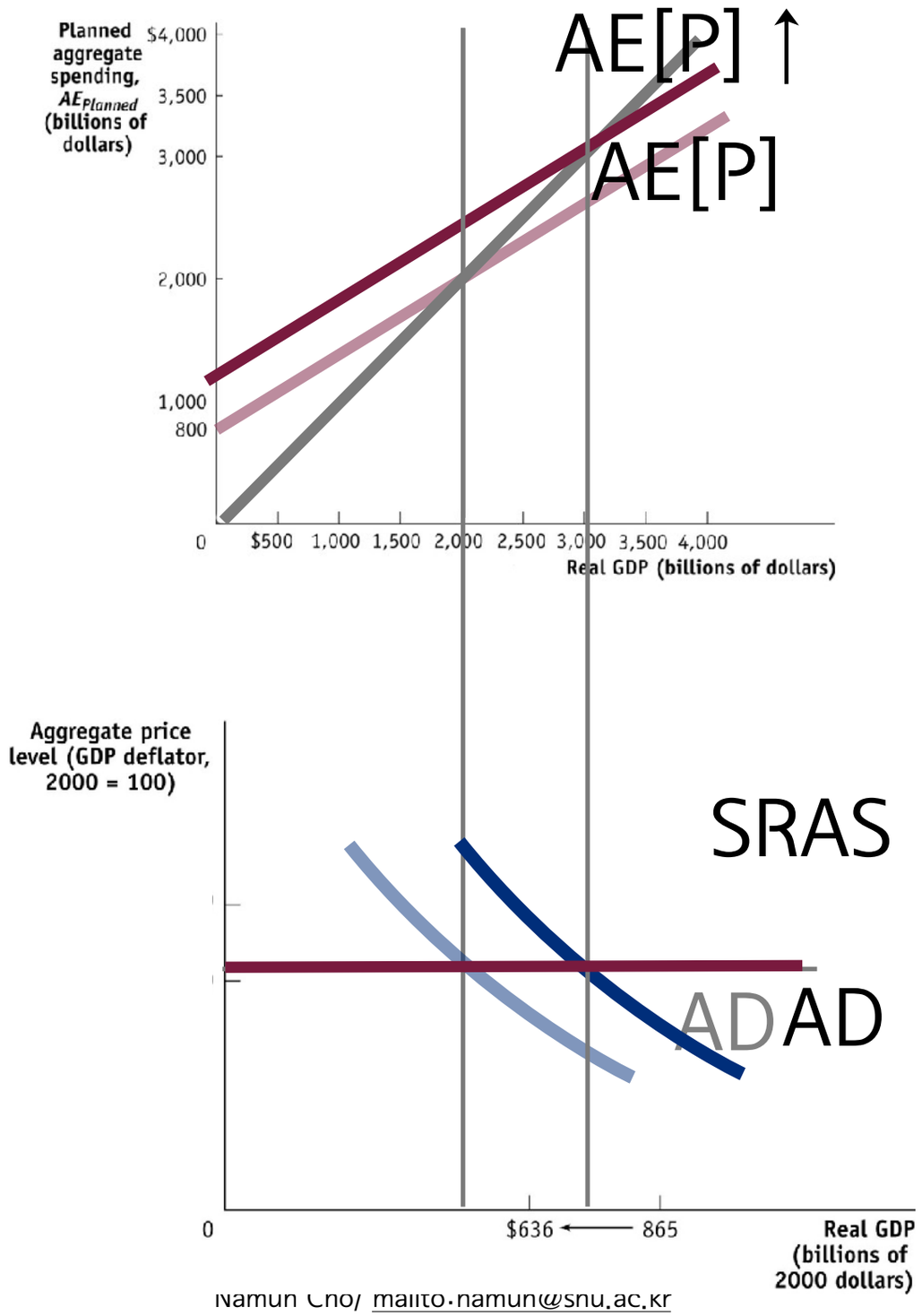
Multiplier Process and Movement of AD cv.



절약의 역설
The Paradox of Thrift

- STEP1:
  미래 경제상황 악화를 우려하여 소비/투자를 줄임
- STEP2:
  감소폭*Multiplier만큼의 거시효과 발생(-)
- STEP3:
  STEP1의 확대재생산 …

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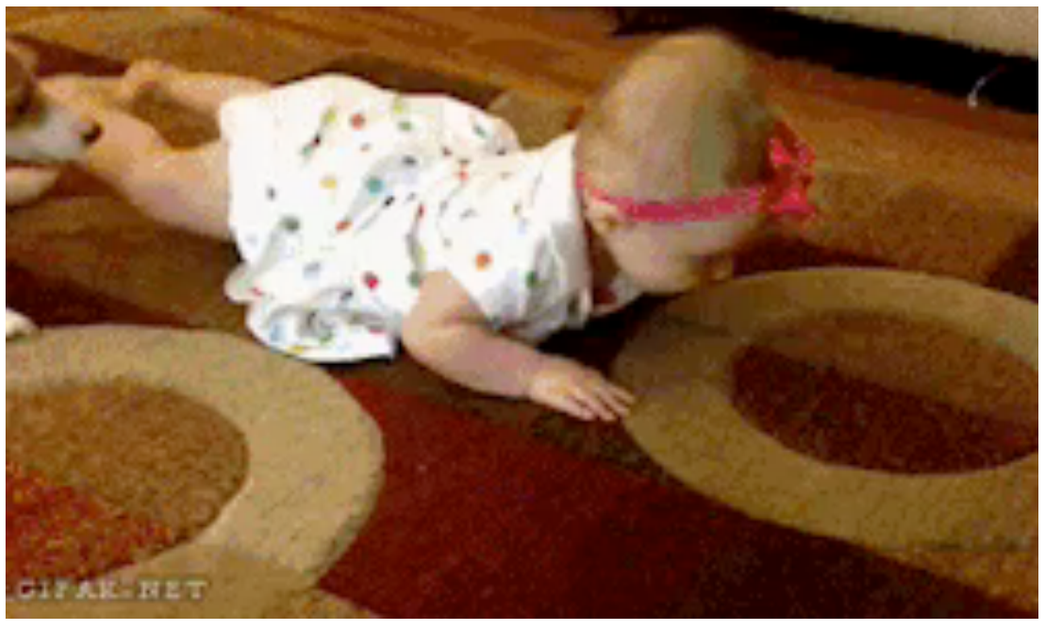
승수효과의 함의
Implications of Multiplier Effect

- 경기변화에 있어서 C와 I[Planned]는 매우 중요한 요소
  - 경제에 충격이 오더라도 자발적 지출의 변화가 적다면 충격으로 인한 마이너스 효과를 줄일 수 있음
    - 반면, 과잉반응한다면 작은 충격에도 큰 변동을 유발할 수도 있음

Next Topics

- 정부부문추가: 재정정책
- Krugman CH28

수고하셨습니다!



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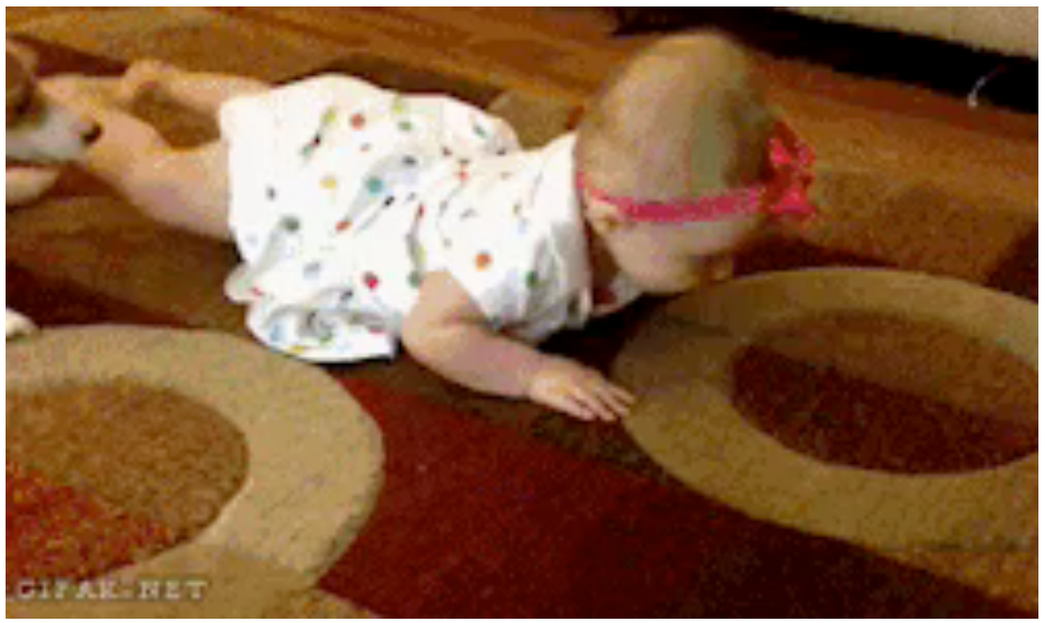
수고하셨습니다!



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