

The Analysis of Economic System in Axie Infinity

By JX
Twitter: @jx_block

Axie Infinity's Economic Flywheel

Axie Core Economic System

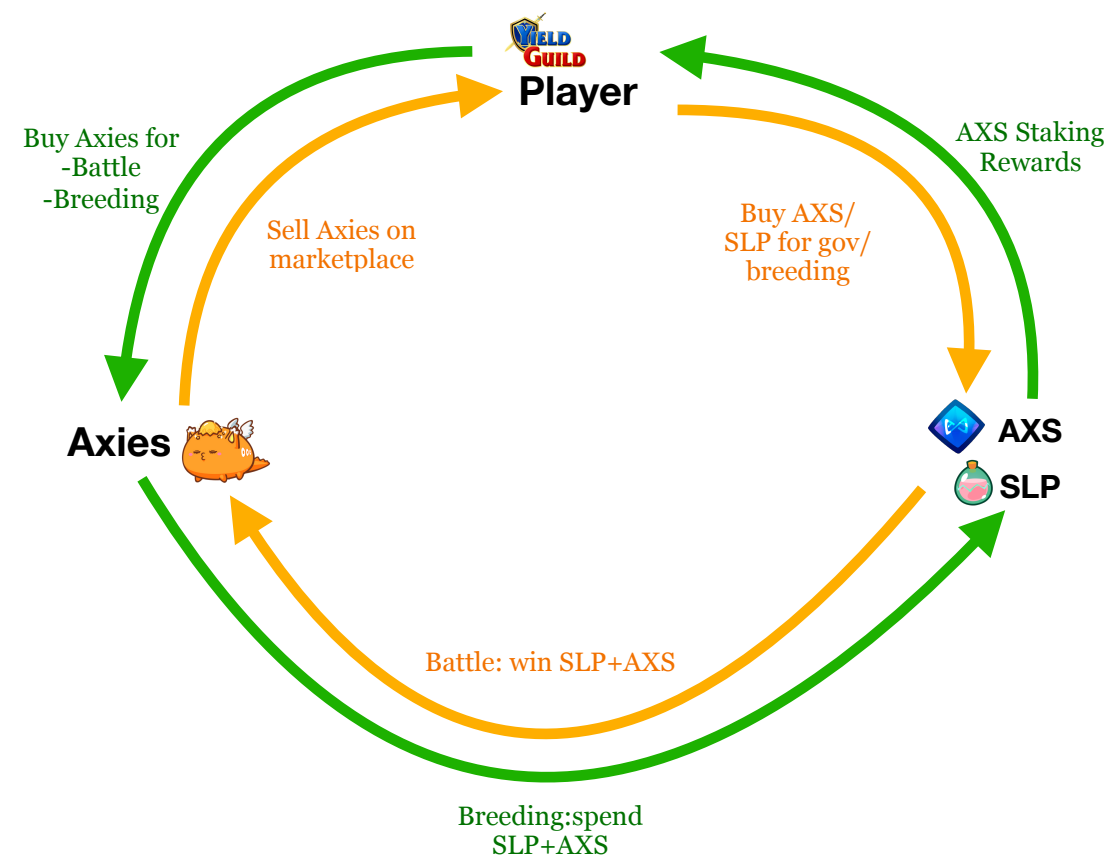
- Axie's economic system consists of two core gameplays currently: Battle and Breeding.
- **Battle:** Players can battle with their Axie team(3 axies) in Adventure Mode(PvE) or Arena(PvP), winning SLP(Small Love Portion token) as rewards. Top player on leaderboard will win AXS rewards each season.
- **Breeding:** Axies can be bred to produce new offsprings. New offsprings can be sold on the marketplace for revenue. Breeding will cost SLP and AXS token as expense.

As the graph illustrates, Axie's flywheel perfectly form a closed loop by three parties: Players, Axies(the NFTs), and AXS/SLP(the native tokens).

Outer Loop(Green line): the value flow from one to another in counter-clockwise direction. Players enter the game to buy at least 3 axies to form a team. The Axie team spend SLP and AXS to breed offsprings. AXS staked will get staking rewards when the function goes live.

Inner Loop(Orange Line): represents value flow in clockwise direction. Players get proceeds from the selling axies on the marketplace and win SLP/AXS through battle. AXS and SLP also can be purchased on listed exchanges and AMM DEXes.

To conclude, the inner loop represents the value creation process while the outer loop shows the value consumption scenarios. Ultimate value inflow is players who buy axies and SLP and ultimate value outflow is the liquidation of assets.



Ecosystem Parties	Value Creation	Value Consumption
Axies	Battle	Breeding
AXS/SLP	Governance, Price Appreciation	Staking, Breeding
Players	Entry Cost(buy axies)	Sale of axies and SLP

Static Economic Analysis (1)-Battle

Assumption Rationale

In battle system, players can earn SLP rewards for the completion of Daily Quest(10 adventure win,5 arena win) and each win in the battle will get additional SLP rewards

- **Daily Quest:** 50 SLP; it's a fixed amount reward once tasks are completed
- **PvE Adventure Mode:** Players can earn from 1 to 20 SLP based on the levels they had passed. The higher level they passed, the more SLP rewards they will earn. Daily cap is 100 SLP. Considering adventure mode is relatively easy to farm, we assume players will get the 100 SLP per day.
- **PvP Arena Mode:** Player will earn different SLP from 1 to 12 according to their ratings(related to game experience). Higher rating gamers will earn more SLP each game. Conservatively we assume the player will win 8 SLP in each game, and wins 10 games per day. So the daily rewards earned from PvP mode is 80 SLP.

Costs

For simplicity, we assume players will buy the cheapest ones to get into the game.

- One axie cost in USD: Axie floor price * ETH Price = **\$421.3 USD**

And to form a team, at least 3 axies should be bought, therefore the threshold cost will be :

- Team cost = 3 * one axie cost = 3 * 421 = **\$1263 USD**

Key Assumptions

Daily SLP battle Rewards

Daily Quest	50
PVP – Arena Mode	80
PVE – Adventure Mode	100
SUM	230

Price (July 21)

SLP Price(\$)	0.29
Axie Floor Price(in ETH)	0.22
AXS Price(\$)	18.1
ETH Price(\$)	1915

Return Analysis - Battle

Daily SLP Rewards(\$)	Payback Period(D)	30-day Revenue(\$)	Annual Revenue(\$)
66.70	18.95	2,001	24,012



Static Economic Analysis (2)-Breeding

Breeding Rules

Breeding system is the core of Axie's economic design, in which new axes are produced and SLPs are consumed.

- Each breeding process require two axes and each axie can be bred at a maximum of 7 times.
- Cost:
 - The cost of breeding will get higher when breed count increase.(As showed in the following sheet)
 - After Ronin mainnet launched, 4 AXS will be charged for each breed.
- Time: Axes take 5 days to reach maturity. We assume only mature axes will be sold on the marketplace.
- Siblings cannot breed together and parents cannot breed with their offspring
- Note: for simplicity reason, we ignore the genetics combination and assume all axes are not mystic/origin.

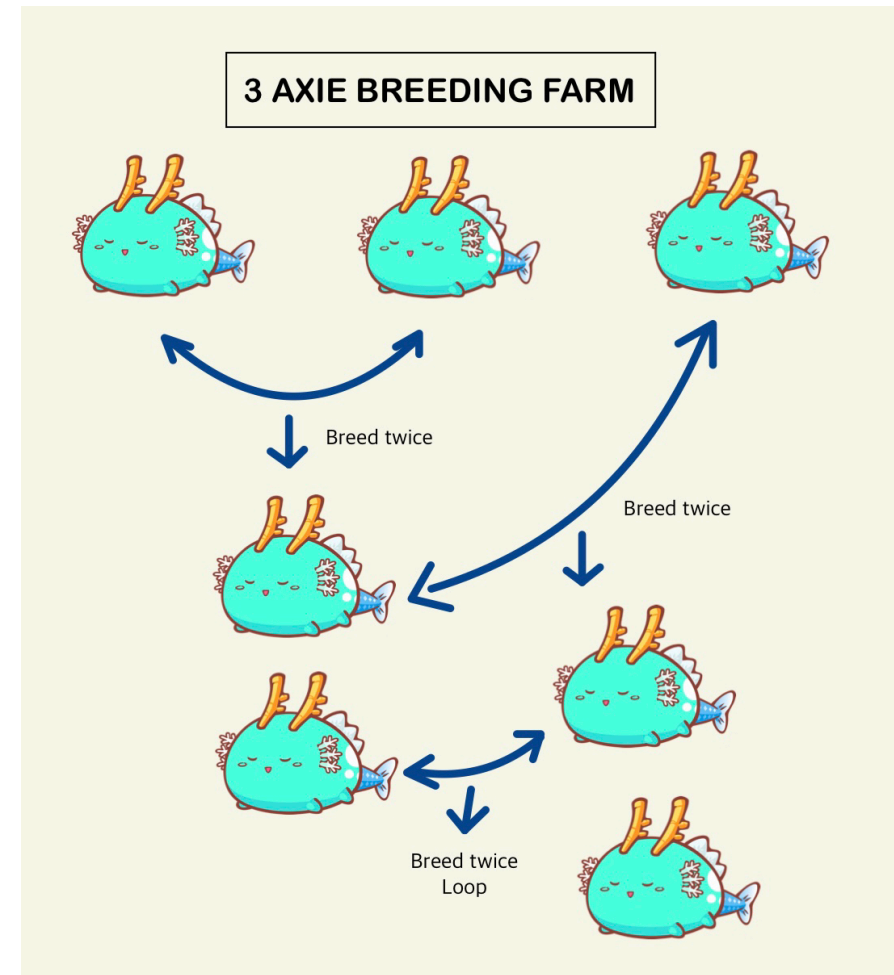
Costs & Strategy

Axie Breed Count	SLP Cost
0/7	150
1/7	300
2/7	450
3/7	750
4/7	1200
5/7	1950
6/7	3150

Strategy: As breeding cost rise exponentially when breed count increases, we will take the breeding tree as the right graph, in which:

- Each axie's breed count will not larger than 2
- Breeding will take 6 times, producing 6 offsprings
- The breeding period will take 30 days as each will take 5 days

Breeding Tree



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Twitter:@jx_block

Static Economic Analysis (3)

Breeding Analysis

- To follow the breeding graph as previous slide, we name the original axes as A,B and C. The siblings share the same letters with different series number.
- The breeding process can be simulated as follow:
- Assume we sold 6 axes produced on the marketplace at the current floor price

Breeding Pairs	Offsprings	Time	Costs
A*B	D1	5	4 AXS, 300 SLP
A*B	D2	10	4 AXS, 600 SLP
C*D1	E1	15	4 AXS, 300 SLP
C*D1	E2	20	4 AXS, 600 SLP
D2*E1	F1	25	4 AXS, 300 SLP
D2*E1	F2	30	4 AXS, 600 SLP

Breeding Costs	AXS	SLP	Total Costs(\$)
	24	2700	1217.4

Breeding Profits	Axie bred in 30-days	Revenue	Breeding Costs	Profits
	6	2527.8	1217.4	1310.4

Summary

- Under the assumption we have made, in the 30-day period, the total profits are nearly double the initial cost, which makes the APY surprisingly as high as **above 3000%.**

Axie Initial Cost	Total Revenue	Total Profit	Annualized Return
1263.9	3311.40	2047.5	3143.98%

Dynamic Economic Analysis

Single Variable Analysis

In previous static model, two key variables determines the outcome of final yield: the price of SLP and Axie's floor price

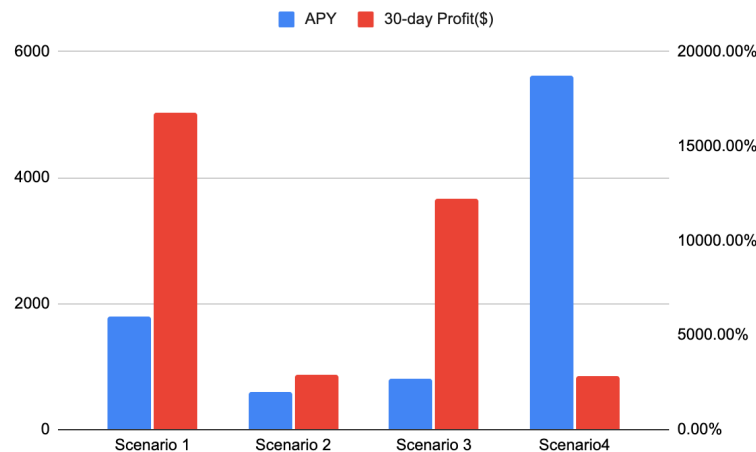
There are four scenarios when one variable keeps constant and another one can go up or go down.

1. SLP price goes UP, Axie floor price keeps constant.
2. SLP price goes DOWN, Axie floor price keeps constant
3. Axie floor price goes UP, SLP price unchanged
4. Axie floor price goes DOWN, SLP price unchanged

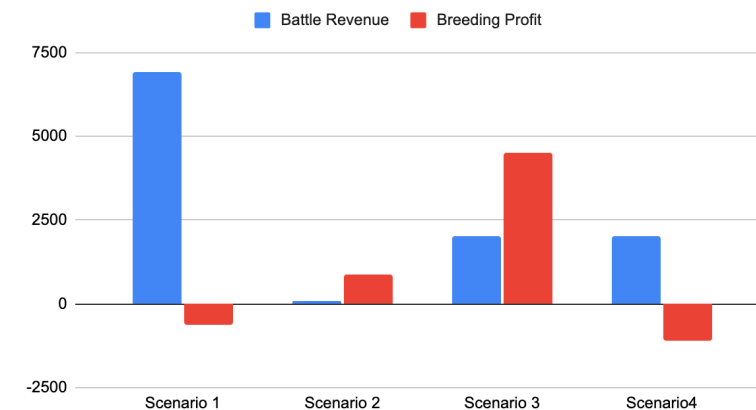
Assumption	SLP Price(\$)	Axie Floor Price
Optimistic	1	\$957 (0.5ETH)
Pessimistic	0.01	\$19.15 (0.01ETH)
Base Case	0.29	\$421.3(0.22ETH)

Summary:

From the graph below, we can obviously tell the highest return from **cheap axie(Scenario 4)** and **high SLP price(Scenario 1)**, in which chases players can accumulate axies with less cost and farm SLP more profitably.



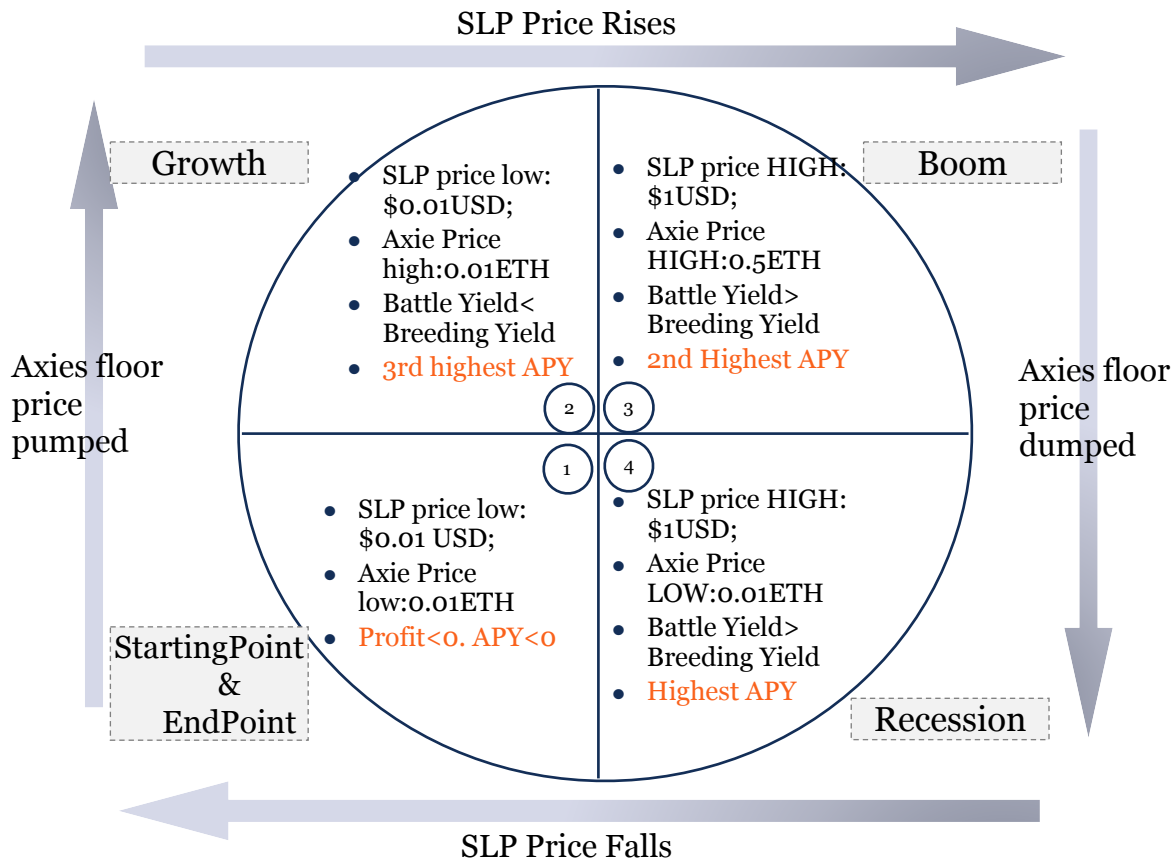
Battle Revenue and Breeding Profit



Lifecycle Analysis

Axie's game lifecycle dynamic analysis

- If the SLP price and Axie floor price, the two variables, both change at the same time, there will be four scenarios. The dynamics between the transition of different scenarios represents the lifecycle of the game itself.
- The graph below is very similar to the well-known **Merrill Lynch Investment Clock** in TradFi space. The game economic cycle also experience the similar transition accordingly.



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State Transition

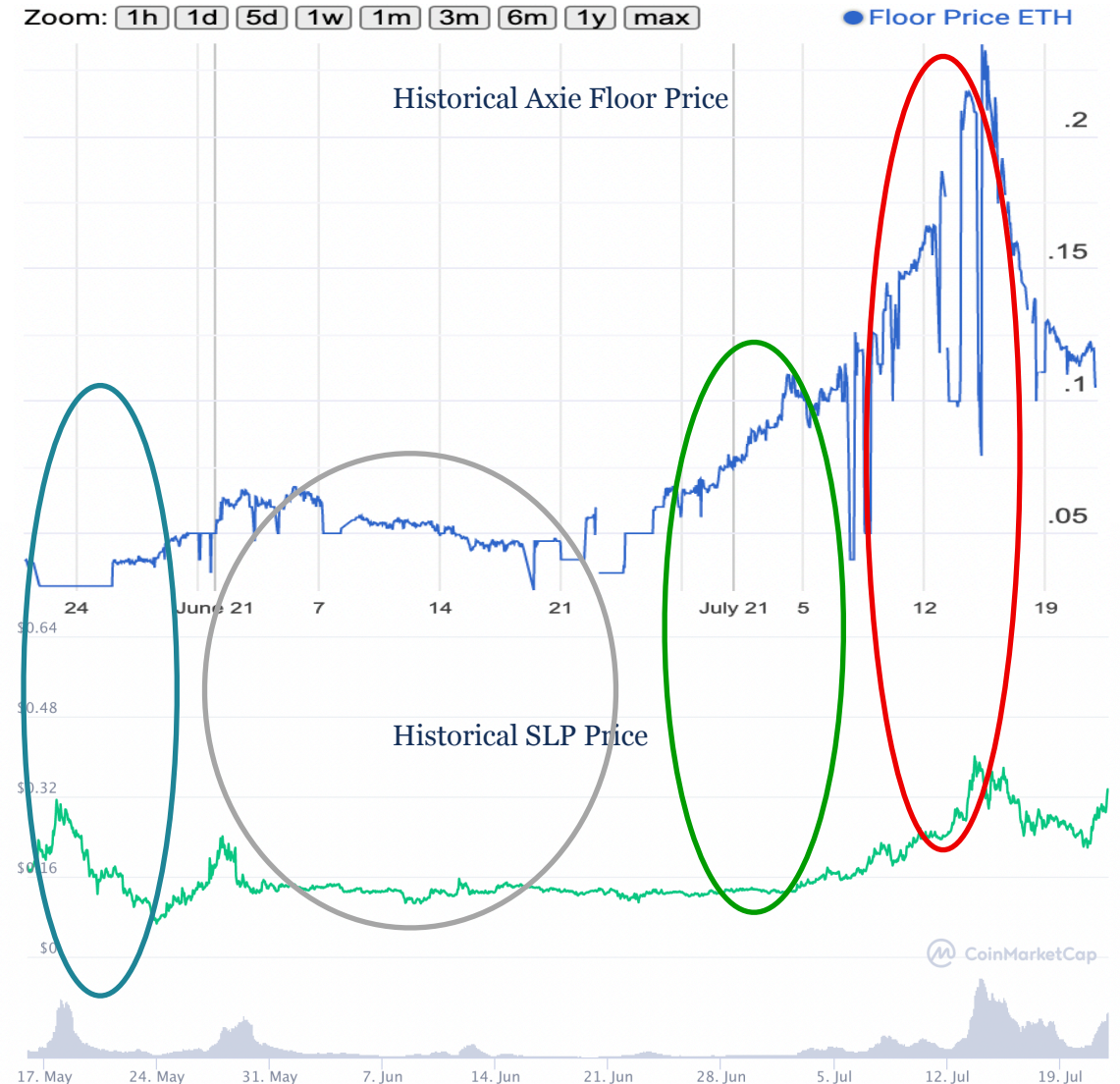
- State 1 -> State 2
State 1 is the starting point of the game, when there are not many players entering the game, the price of assets are stay at lower level. With the new gamers coming in, each needs to buy axies, the price of axies will firstly rise.
- State 2 -> State 3
The battle farming yields will attract more players to join the game, resulting the increase of SLP as the early players will purchase more SLP to breed for meeting the demands of new axies.
- State 3 -> State 4
State 3 symbolized the climax of the game, when demands of SLP and axies are both reaching to the highest level, implying new comers are flooding in. But this may come to “**over-breeding**” condition, which is a knock-on effect when the high price of axies harms the demand of new players and supply of axies cannot be offset by demand. Price of axies goes down.
- State 4 -> State 1
As state 3 mentioned, due to the declined demand of axies, it will be less appealing for players to continue breeding. The demand of SLP will fall, resulting price of SLP goes down. If the loop continues without rebound, the whole game economy will come to stall.

Historical Data Verification

Rationale

- May, 2021 - State 4 (Blue Circle)
 - The period between mid-May to end of May can be categorized as **State 4**, when the price of SLP are at high level while axes prices still not expensive compared with current price.
- June, 2021 - State 1 (Gray Circle)
 - Impacted by the bloodshed of crypto market, the prices of both SLP and axes are in relatively low level, matching the pattern of State 1
- Late June to Early July - State 2 (Green Circle)
 - With the hype of Play-to-Earn game model, Axie Infinity experienced unprecedented growth in crypto gaming industry. Thousands of new entrants joined the game each day, pumping the floor price of axie as a result. The SLP price keeps steady at the early stage of growth. The pattern perfectly match the State 2.
- Early July to Present - State 3 (BOOM, Red Circle)
 - Huge demands of new axes come with the yield of breeding. SLP price get pumped to ATH for that reason. Floor price of axie also broke the record. It symbolized the period is State 3.

Historical Data



Key Takeaways

1

Key Takeaway 1: The growth rate of new entrants are crucial and decisive variable in the economic system. The growth trend will like to continue in the short to mid term.

As seen from above analysis, the principal driving force of the flywheel is the demand from new entrants. Current monthly profit for a Axie team is above \$2000 USD. If Axie Infinity is a country, the average monthly salary will rank 25th among all countries. Residents in countries behind top 25 will earn more if they come to Axie Infinity metaverse.

2

Key Takeaway 2: The current economic model should decouple axes' demand from the influx of new players to enhance its anti-fragility in the long run.

The economic system of Axie Infinity face external challenges like the macro crypto market environment, which beyond the control of the in-game manipulation strategies. Team has awarded of this and has been continuing adding scenarios for players to maximize the utilization of axes instead of purely dump on the market.

3

Key Takeaway 3:

For conservative players, best strategy is to enter the market in State 3, when prices are pumped. For more aggressive players, the plan to accumulate cheap axes in State 1 or State 4 would be better off.

