STAR ATLAS

State of the Economy

ATMTA, Inc.
Department of Economics

Q2 2024

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Executive Summary

The Star Atlas economy underwent significant transformations over the period, marked by the ongoing expansion of 'Star Atlas Golden Era' alongside a sharp rise in currency volatility. Participants within the Star Atlas ecosystem had to adapt and reorganize in response to heightened gameplay challenges, leading to broader shifts across the economy.

The refinement of ATLAS emissions in the SAGE Starbase update and the phase-out of the SCORE program further shifted players towards effort-based ATLAS emissions. The new loyalty points (LP) program saw higher participation than Council RFRs, highlighting its accessibility. Per capita LP resource burn remained stable across factions, reflecting the economy's adaptation to the new *Starbased* structure.

Despite volatility, GDP stabilized in the latter half of the quarter, with significant growth in GDP per capita driven by wealthier players. Faction-specific GDP metrics showed MUD's slight drop, while ONI and USTUR saw notable increases due to strategic player actions. Locker programs remained active, with USTUR increasing its POLIS balance and the ATLAS locker seeing decreases amid volatility.

The launch of SAGE *Starbased* brought starbase crafting and upkeep to the forefront, necessitating player deposits of crafted resources to maintain and upgrade facilities for advanced crafting recipes. The MUD faction prioritized compact operations to minimize transport costs, contrasting with ONI and USTUR factions expanding into outer sectors for efficient data-running operations facilitated by Decentralized Autonomous Corporations.

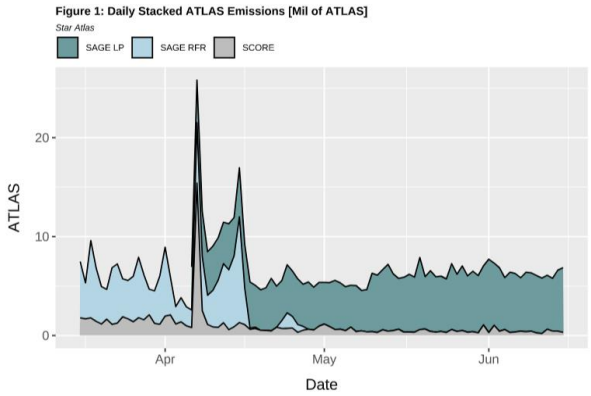
Key Highlights:

- Daily Percentage of ATLAS emission sunk remained consistently above 100%, with a mean of 146.3%.
- *Starbased* ATLAS claiming participation increased by 86.8% from the Council Request for Resources program to the Loyalty Points program.
- The Star Atlas GDP grew by 6.24% over the quarter, resulting in a new annual GDP projection of $34,121,660.
- *Starbased* operational margins increased steadily across factions over the quarter, partially attributed to the 50% drop in mean daily network fees paid by players.
- Rome was the largest net accumulator of ATLAS, and Aephia was the largest net distributor of ATLAS.
- This quarter, ship and claim stake CPI show positive growth in ATLAS over the period.

As players continue to adapt and innovate amidst increasing volatility, the ecosystem evolves with resilience and strategic foresight. The ongoing refinement of ATLAS emissions and the introduction of the LP program underscore a steadfast commitment to accessible economic participation at the faction, DAC, and individual player levels.

Emissions and Loyalty Points

The further refinement of ATLAS emissions in the Star Atlas Golden Era (SAGE) *Starbased* update and the ongoing phase-out of Faction Fleet (SCORE) has nearly completed the shift to effort-based ATLAS emissions within the Star Atlas ecosystem. Figure 1 shows the total ATLAS emissions across different programs. In the first half of the quarter, there was a noticeable spike due to a SCORE user claiming a large, accumulated amount of ATLAS. In the new LP model, such anomalies won't occur.



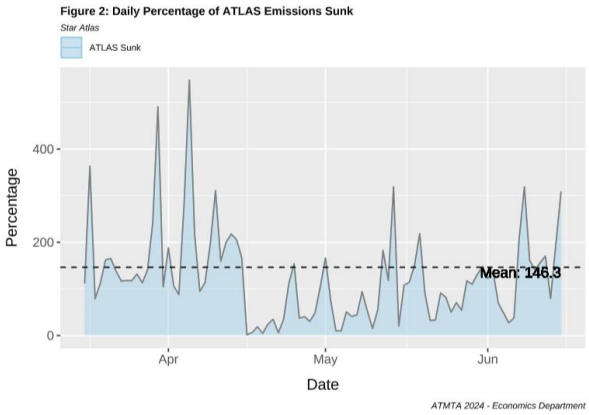
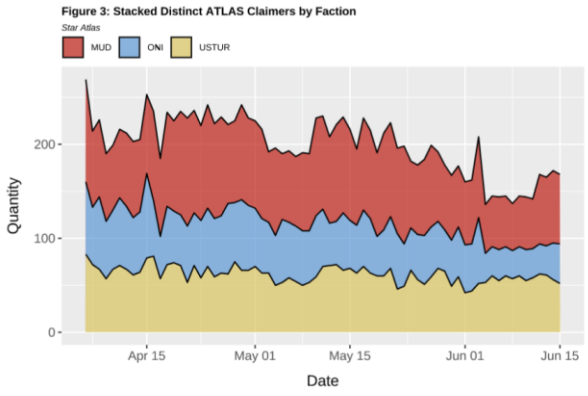
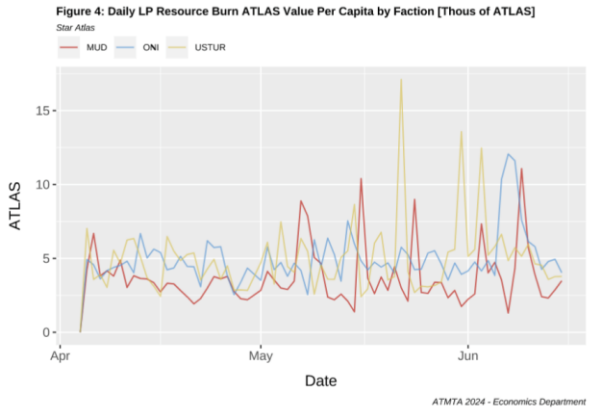


Figure 2 shows the daily sinking of ATLAS emissions. That is the amount of ATLAS spent by players on primary ship sales, in-game crafting and marketplace fees, and ATLAS Prime transaction fees. This metric rarely fell below 100% throughout the quarter, indicating that the ATLAS used for primary sales and fees greatly exceeded the amount emitted. A high percentage sunk is beneficial as it suggests a healthy balance between supply and demand for ATLAS within the Star Atlas economy.

Figure 4 below shows that participation in the new loyalty points (LP) program has exceeded that of Council RFRs, totaling on average 230 unique claimers per day and 1513 unique claimers over the quarter.[1] This increase is in comparison to 57 unique RFR claimers per day and 810 across the program's lifespan.[2] Increased participation in the LP system highlights the ease of use of the LP system compared to that of RFRs.[3] In other words, more players can now access direct ATLAS emissions than before.





[1] Average and aggregate claimers include non-faction participants.

[2] The council RFR system allowed players to redeem resources for ATLAS directly from the Galactic Marketplace and has since been replaced with LP.

[3] Previously, a player had to put together a very complex game recipe called a Council Request for Resources which required a large amount of numerous ingredients. Only a select group of players were able to collect these recipes and other players instead earned ATLAS through accumulating and selling assets directly on the Galactic Marketplace.

Figure 4 shows the total ATLAS value of assets burnt (used) towards LP-yielding actions – starbase upkeep & upgrading resource sinks – on a per-user basis. This metric remained relatively consistent across the three factions, especially in the latter half of the quarter as resource prices adjusted to the new *Starbased* economy. The USTUR faction saw the highest per capita LP burn throughout the period at 4951 ATLAS, followed by ONI at 4935 ATLAS and MUD at 3678 ATLAS. Some quick math reveals that these sinks make up about 25% of the average daily ATLAS emissions per user in SAGE (which floats around 20K ATLAS).

The Star Atlas Census

This quarter, significant changes to new and old programs have influenced the Star Atlas census. Specifically, the deprecation of passive ATLAS rewards through the SCORE program and the increase in labor requirements brought about by SAGE *Starbased*.

Table 1: Star Atlas Census (06-15-2024)

Category	Currency	NFT Owner	Voter	Employed	Freq	Frac	Wealth	WShare
Nonresident Currency	Y				78211	49.7	33.59	25.01
Nonresident NFT		Y			27348	17.4	32.32	24.07
	Y	Y			9764	6.2	2.56	1.91
Nonresident Locked POLIS	Y		Y		3017	1.9	4.99	3.72
	Y	Y	Y		1519	1.0	3.31	2.46
Residents	Y	Y		Y	27219	17.3	35.94	26.76
		Y		Y	6172	3.9	3.76	2.80
Citizens	Y	Y	Y	Y	3997	2.5	17.82	13.27
Total					157247	100.0	134.29	100.00

[a] Exclude wallets with <$0.10 in total market value
[b] Wealth measured in millions of USDC

This quarter's census introduces a new population restriction: wallets with a total market value of less than $0.10 are excluded. This change helps to remove accounts that should not be represented as part of the Star Atlas ecosystem.

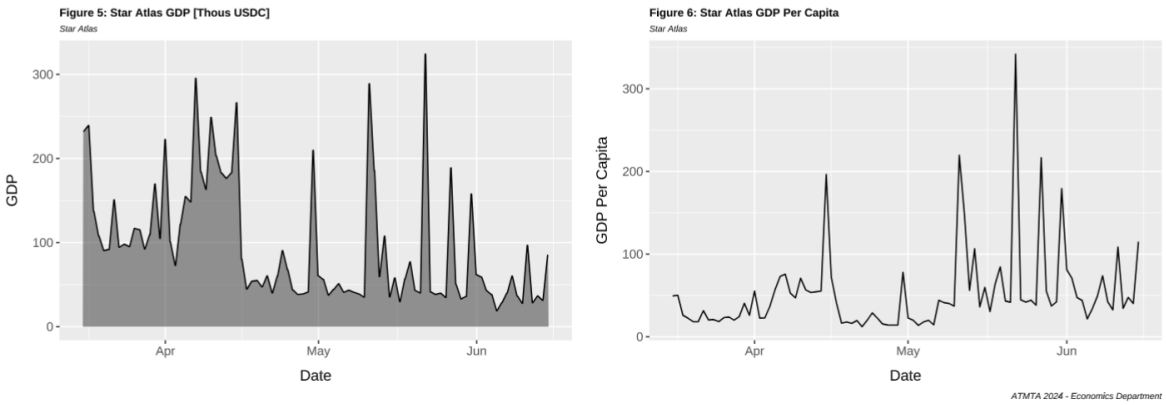
The new restriction impacted non-resident currency holders the most, accounting for the removal of over 20,000 distinct wallets. However, these wallets were sellers with a residual balance of ATLAS due to their usage of decentralized exchanges and should not count toward our ecosystem population. Unsurprisingly, these wallets accounted for a negligible amount of wealth. Since last quarter, token volatility was responsible for this group's decrease in aggregate wealth and subsequent wealth share, which dropped by 55.6% and 31.7%, respectively.

Nonresident NFT wealth saw significant growth with the introduction of Titans and numerous other ships listed on the Galactic Marketplace during the quarter. Nonresident holders of locked POLIS tokens also experienced an increase in their numbers as users departed from SCORE but maintained their locked balance.

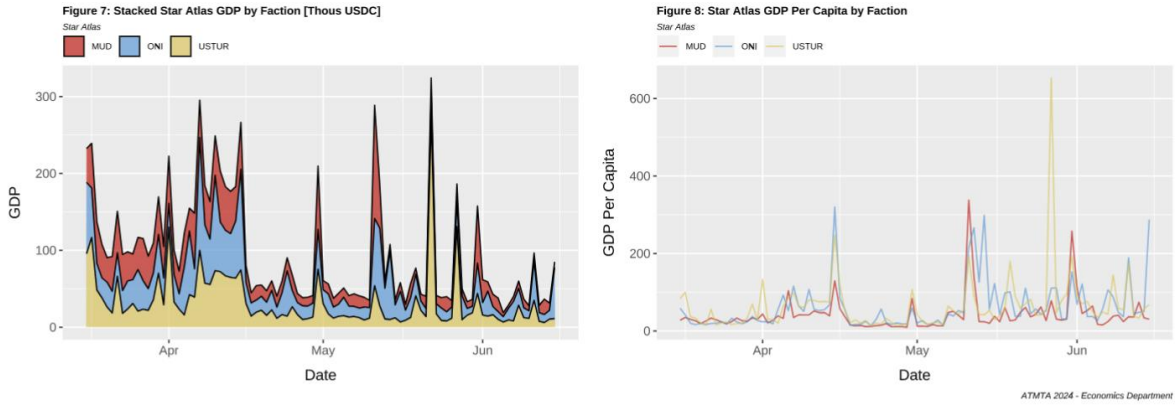
Meanwhile, price volatility and the phasing out of the SCORE program impacted residents and citizen groups. Many participants opted to refrain from engaging further in *Starbased* due to heightened labor requirements, leading to a shift towards non residency.

Star Atlas Gross Domestic Product

The Star Atlas ecosystem's Gross Domestic Product (GDP) was not immune to the broader macro volatility but stabilized during the latter half of the quarter.[4] Figure 11 showcases this quarter's mean daily GDP of $93,484, surpassing the previous quarter by 6.24%, resulting in a new annual GDP projection of $34,121,660.



GDP per capita also exhibited notable growth, increasing by 193% to $51.60. The increase suggests wealthier players have driven growth throughout the period, likely due to their higher activity levels and purchasing power within the Star Atlas ecosystem. This quarter's economic environment, characterized by strategic resource management and enhanced player engagement, has further contributed to the significant growth in GDP per capita.

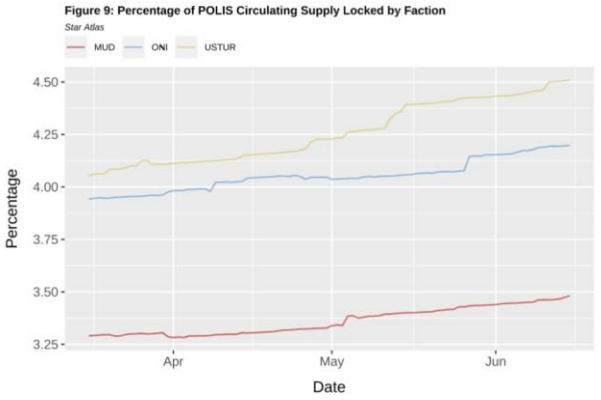


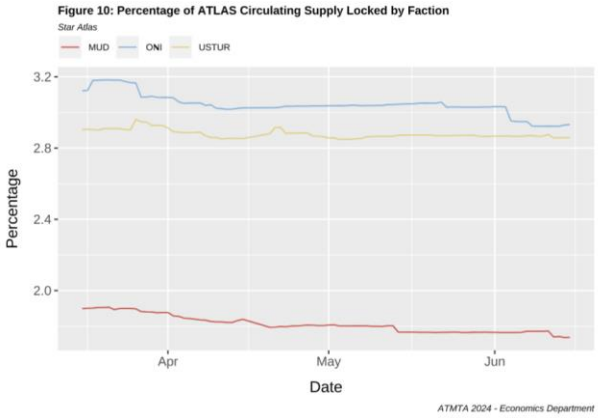
Figures 7 and 8 split the GDP metrics out by faction. Compared to the previous quarter, MUD's daily GDP dropped by 1.65% to $32,584, while ONI and USTUR saw a significant increase of 30% to $36,962 and 37% to $36,413, respectively. ONI and USTUR saw similar growth in their GDP per capita. This growth is likely due to "multi-factioning," which involves players balancing their efforts out across multiple factions due to the fixed ATLAS emissions per faction of 2 million ATLAS daily (before accounting for Starbase Tier incentives).

The locker programs also saw significant activity as players made decisions based on the changing game and token environment. Figures 9 and 10 capture these changes. USTUR grew its locked balance of POLIS by 0.5%, totaling 4.5% of the total POLIS circulating supply, as seen in Figure 9. The ONI and

[4] See "State of the Economy Q1 2024" for GDP definition and formula

MUD factions also increased their locked balances by less significant margins of 0.25% and 0.19%, respectively.

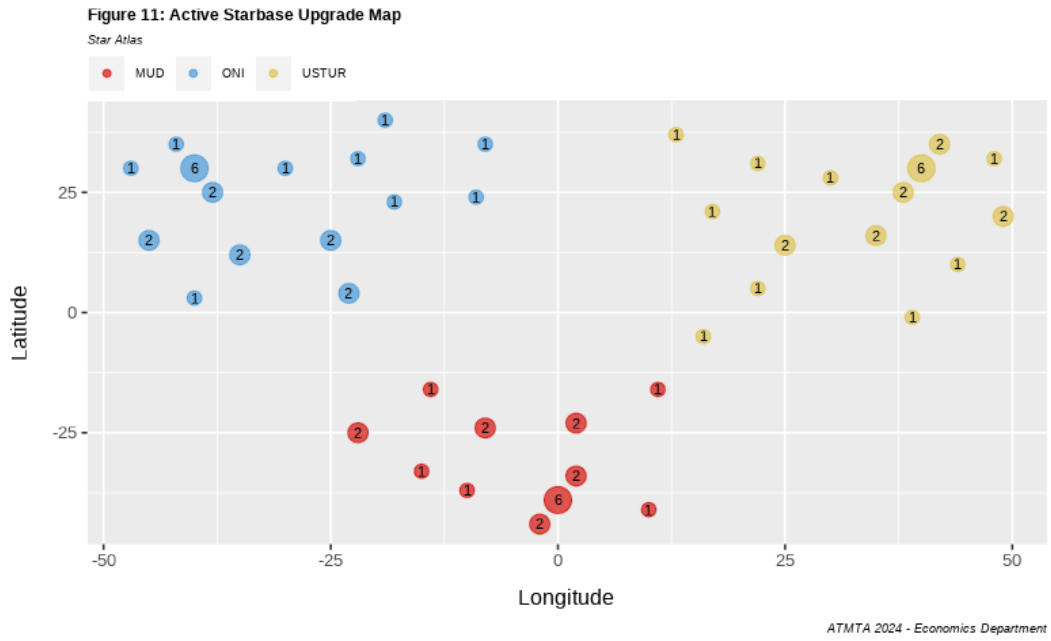




Unlike the POLIS locker, the ATLAS locker saw decreased faction balances. The on demand unlock schedule enabled players to withdraw at will as volatility persisted. The ONI faction saw the most significant drop in its locked balance by 0.19% of the total ATLAS circulating supply. The MUD faction decreased by 0.16%, and the USTUR faction balance remained relatively stable at a 0.05% decrease, as seen in Figure 10.

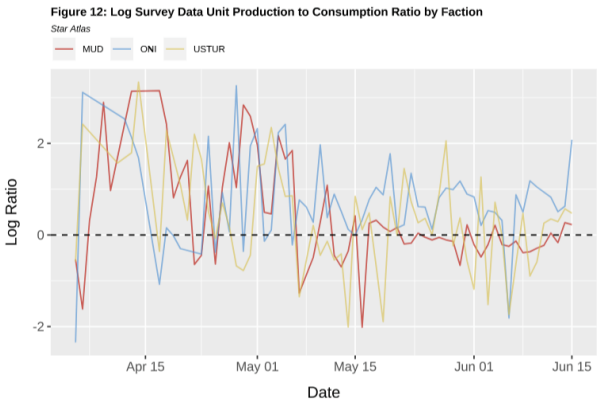
Star Atlas Golden Era

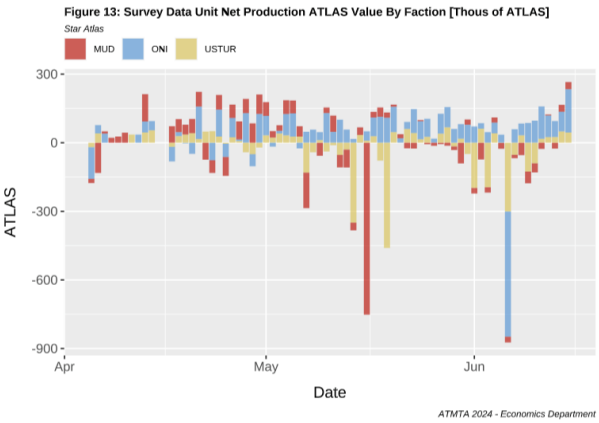
The launch of SAGE *Starbased* introduced starbase crafting and upkeep, requiring players to deposit crafted resources to keep the in-game facilities operational and upgrade them to enable more advanced crafting recipes. Figure 11 highlights the current operational starbase levels as of *2024-06-15*.[5]



[5] An operational starbase is one that has begun the upgrade process, and/or is being upkept at the time of the snapshot.

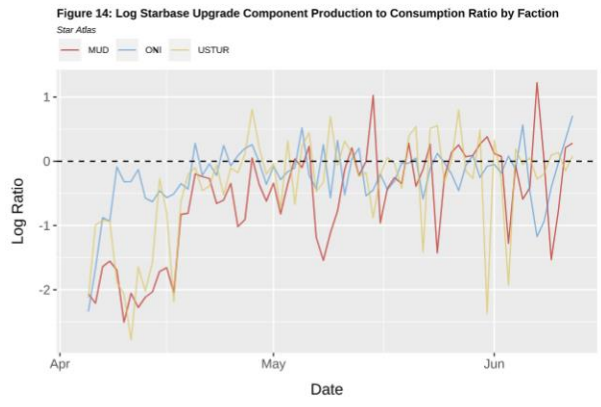
The three factions demonstrate comparable preferences in their starbase upgrading strategies. The MUD faction focuses on compact operations, prioritizing reduced transport costs over expansive growth. This approach is particularly advantageous within the logistics-based game loops currently in place. In contrast, the ONI and USTUR factions adopt a broader approach, expanding their starbase management to outer sectors of their territory. This strategy supports more efficient data running operations, facilitating extended fleet travel into unoccupied space with shorter refuel times.

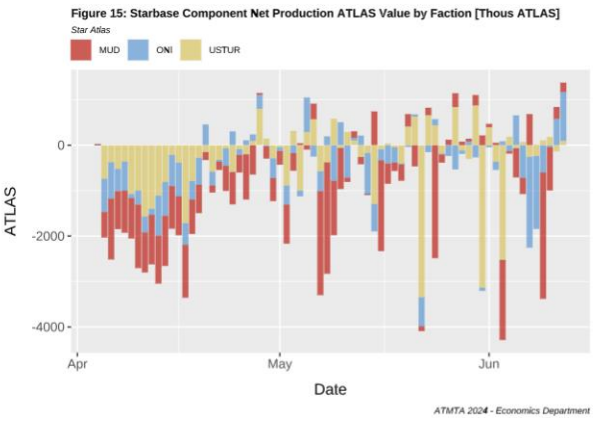




Due to their significance in starbase upgrade recipes, survey data units (SDUs) played a prominent role in player production activity this quarter. Figure 12 highlights the production-to-consumption ratio in log terms, which measures the number of SDUs produced per faction and divides the total by the amount consumed in recipes and upgrading. We log the metric, so it is easier to see the trends in the figure. Values below zero indicate a net consumption day, and values above zero indicate a net production day. Thus, if the ratio is exactly 0, then production was equal to consumption on that day.

Figure 13 calculates the market value of the residual balance of SDUs, representing an increase or decrease in aggregate wealth on the day. The ONI faction stood out as the dominant producer of SDUs, with a consistent daily surplus above 43,726 ATLAS worth of SDUs. All factions had net buying days, but the MUD and USTUR factions had consistently more daily deficits across the period.





Aside from SDUs, component materials such as frameworks are required to upgrade starbases. Figure 14 shows the production-to-consumption ratio of these upgrading materials, highlighting the economic efficiency of each faction. The USTUR faction was the quickest to set up its production operations, proven by the pace at which the ratio was greater than one during the first half of the

quarter. Figure 15, similar to Figure 13, shows the range in net buying and net selling of Starbase upgrade components. Different from SDU production, factions were unable to produce a surplus consistently. The MUD faction had the most consistent daily deficit, totaling 40,697,664 ATLAS over the quarter.

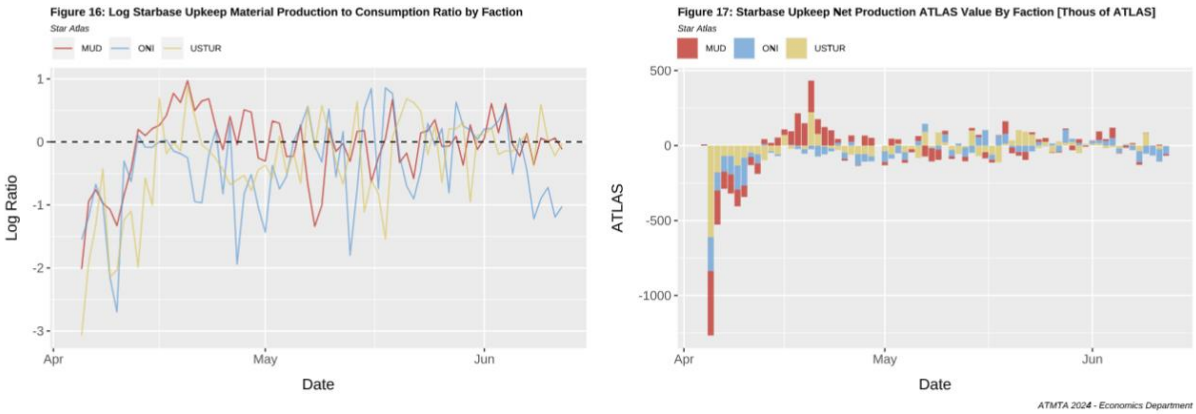
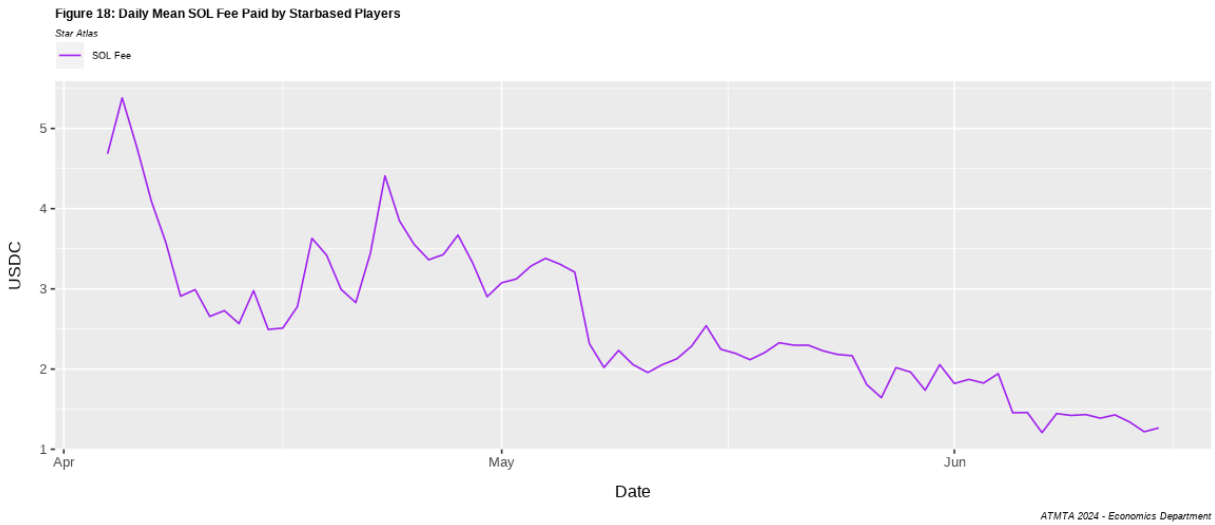


Figure 16 examines starbase upkeep materials, which keep the starbase operational for action such as crafting, which shows a much more consistent oscillation around 0. This trend is supported by the net production values in Figure 17, showing that factions supplied themselves with just enough materials needed to upkeep the starbases over time.

SOL Transaction Fees

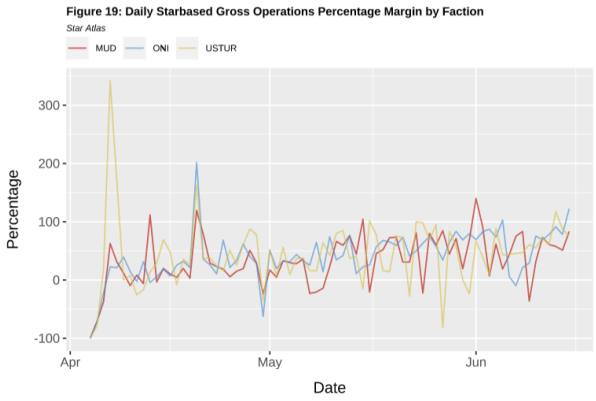
Despite the opportunities in the resource markets, player operations became significantly impacted by the historically high Solana network fees.[6] Unlike in-game operational costs, Solana transaction fees do not scale with a player's budget. As such, these fees disproportionately affected smaller fleets due to their smaller operational margins. In contrast, wealthier players were much less affected since network fees are consistent across activities.

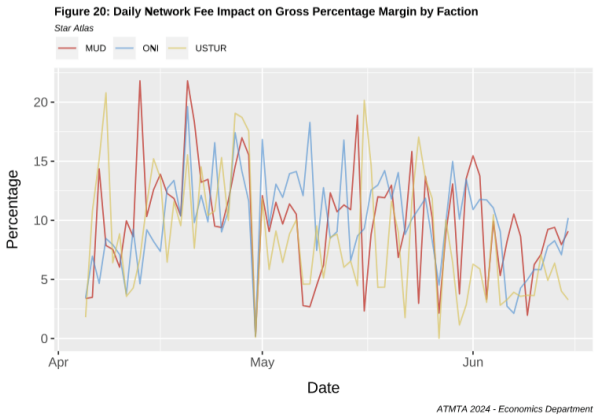


[6] High congestion led to above average fees, as the popularity of the Solana network increased during the period.

The decrease in the mean network fee paid by SAGE *Starbased* players per day is visualized in Figure 18. The over 50% decrease allowed some breathing room for players with higher costs than their output during the early days of the quarter.

Figure 19 shows an observable increase in gross operational percentage margins due to decreased network fees. Figure 20 highlights the reduction in the impact of network fees on margins, which peaked at 20% and dropped to 10% in the latter half of the quarter.

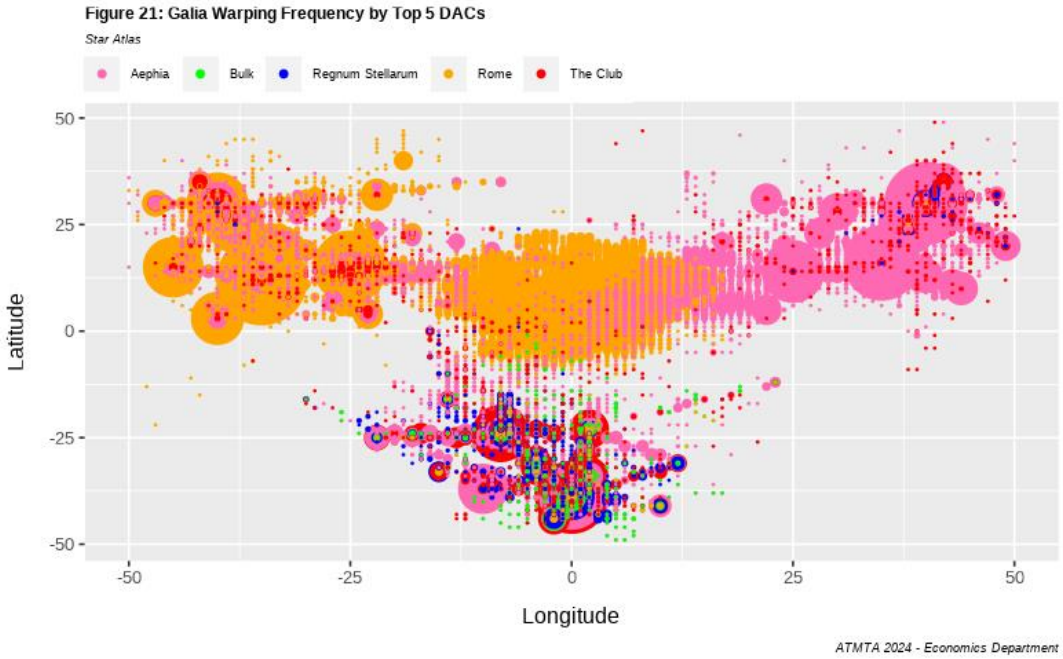




Unfortunately, network fees are unavoidable, but creating highly efficient mining, crafting, and scanning operations to minimize costs can alleviate the burden caused by higher network fees.

Decentralized Autonomous Corporations

Faction-level data offers insight into the economics of unorganized player samples. Zooming in from the faction level, decentralized autonomous corporations (DACs) dominate the Galia expanse. This quarter, we ranked the top 5 DACs based on output per user rather than aggregate activity levels. This approach includes economically inclined DACs with genuinely engaged and motivated members.

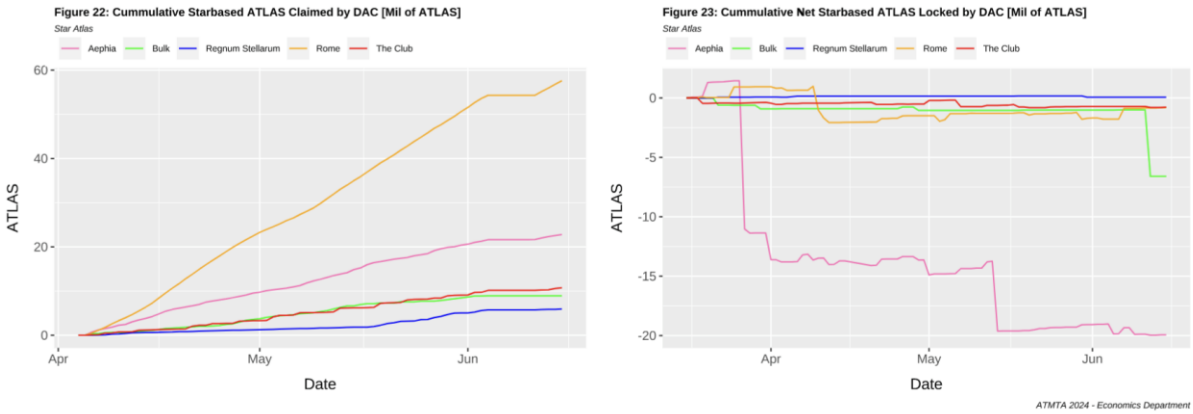


A familiar figure, Figure 21, shows the warping map of the top 5 DACs this quarter, where larger bubbles indicate higher warping frequency within the sector. Rome, the most prominent DAC in the figure, performed extensive data-running missions in the center of the map.[7] Aephia, while less active in the center, reached all corners of the Galia expanse with its faction-inclusive members.

Table 2: Star Atlas Aggregate Top 5 DAC Output Distribution

DAC	Mining	Starbase Crafting	Starbase Upkeep	Active Ship MV
Aephia	12.45	19.09	61.30	44.60
Bulk	0.37	9.30	8.12	7.80
Regnum Stellarum	0.46	5.01	0.50	4.01
Rome	84.89	57.46	14.47	29.51
The Club	1.83	9.13	15.61	14.08
Total	**100.00**	**100.00**	**100.00**	**100.00**

Table 2 provides a detailed analysis of output per DAC among the top 5 DACs. Aephia led in starbase upkeep and operated fleets with the highest ship market value. Despite its smaller size, Bulk outperformed The Club in starbase crafting output. Rome, the standout DAC of the quarter, accounted for 84.89% of the total mining output and excelled in crafting output.



In SAGE *Starbased*, output translates into ATLAS emissions through the upkeep and upgrade of starbases. DACs fully leveraged these new systems, collectively claiming over 100 million ATLAS during the quarter, as illustrated in Figure 22. Figure 23 revisits the ATLAS locker, displaying the cumulative net locked by DACs over this period. The majority of the top 5 DACs were unaffected by token volatility, showing minimal changes in their ATLAS-locked quantities. Aephia, however, stood out as an exception, withdrawing approximately 20 million ATLAS cumulatively throughout the quarter.

[7] Data running is the gameplay term used to describe scanning for Survey Data Units

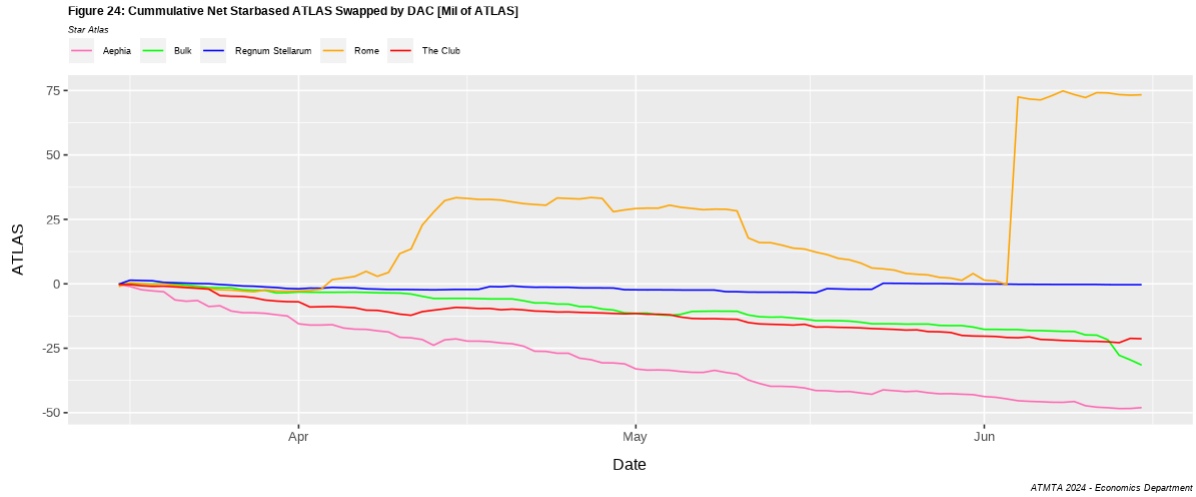


Figure 24 illustrates the motivations behind the ATLAS output of the top 5 DACs. Cumulative net ATLAS swaps reveal substantial selling pressure exerted by Bulk, The Club, and Aephia over the period. Despite some fluctuations, Rome significantly increased their ATLAS holdings during the latter half of the period.

Price Indices

Consumer Price Indexes (CPIs) measure an asset's market performance from one point in time to another, providing a snapshot of how the prices of goods or services change over a given period. They are crucial for understanding purchasing power within an economy. In this case, the CPIs track the performance of Star Atlas assets from the start to the end of the quarter.

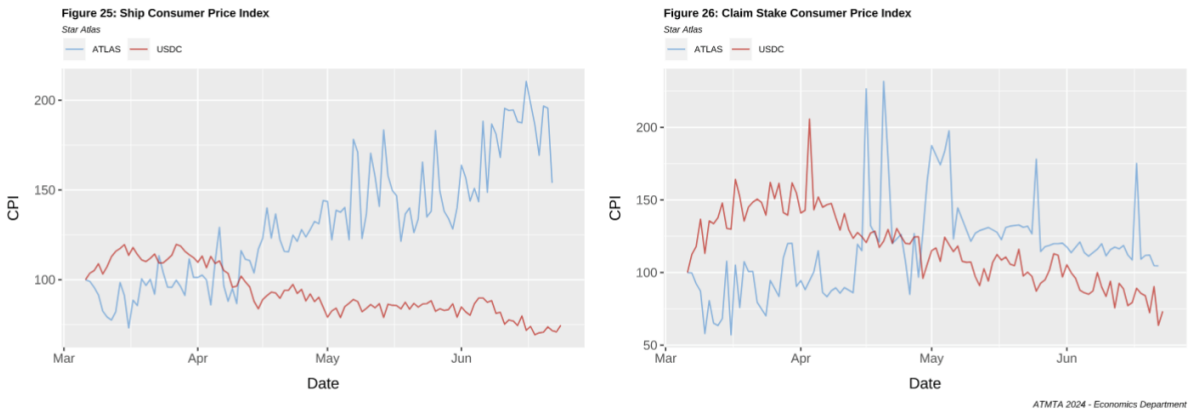
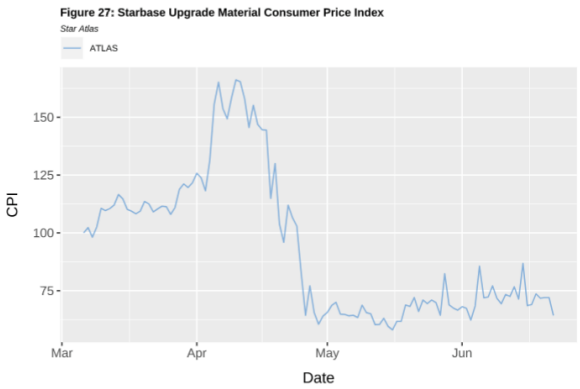
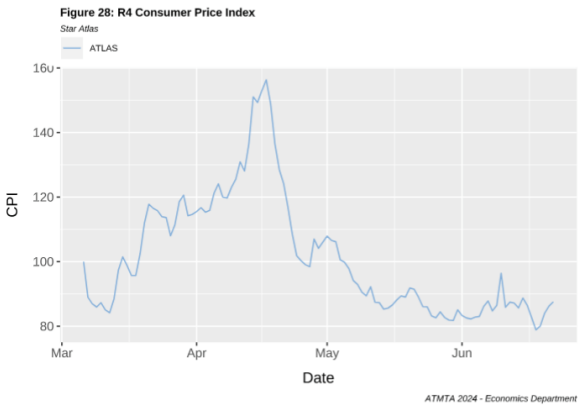


Figure 25 measures ships' Consumer Price Index (CPI) from March 16, 2024, to June 15, 2024. The increase in the ship ATLAS CPI is attributed to the decrease in the ATLAS/USDC exchange rate, as players sought to offset the discount created by the volatile USDC pairing. Figure 26 evaluates the CPI for claim stakes over the same period. While the CPI for claim stakes did not increase as sharply, they performed well in ATLAS throughout the quarter but showed a tapering off when measured in USDC.





Starbase upgrade materials and R4 resources (including upkeep materials) exhibited similar trends throughout the quarter, as illustrated in Figures 27 and 28. Both resource categories peaked in mid-April before gradually declining to levels just below those observed at the beginning of the period.

Conclusion

This quarter marked a profound evolution in the Star Atlas economy, characterized by the continual shift from passive ATLAS emissions to active participation through SAGE gameplay. The refinement of ATLAS emissions through the SAGE *Starbased* update and the gradual phase-out of SCORE lead this transition, with notable adjustments in participant behaviors throughout the period.

The continuation of the Star Atlas GDP provided insight into aggregate and player-level growth within the ecosystem. Observations of production behaviors under SAGE and the activities of decentralized autonomous corporations (DACs) highlighted the ecosystem's adaptive nature in response to new features.

Looking ahead, the Star Atlas ecosystem is poised for continued growth. With increasing participation and refined economics, players can anticipate new opportunities brought about by the further sophistication of the Star Atlas economy. The repeated success of new programs and the phase-out of old ones aim to cement Star Atlas as the best blockchain gaming experience on the market.