



STAR ATLAS

State of the Economy

ATMTA, Inc.
Department of Economics

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Executive Summary

Six releases dominated the quarter, with a few driving significant economic responses.

On April 26th, Escape Velocity (EV) was launched as an on-chain movement test that, at its peak, made up approximately 18.7%¹ of all transactions on the Solana blockchain. This was followed by multiple “surge events,” which increased the discovery rate of specific loot drops, driving participation. As of June 28th, there have been 6562 distinct wallets with fleets in EV. The market value of prizes found was 43.2 million ATLAS, and the total player hours were 254,487.

On June 7th, the player production economy became the sole production vehicle of R4 across the Star Atlas ecosystem after selling through one month's supply in approximately 12 hours.

The liberalization of R4 supply increased participation in EV and Faction Claims. Simultaneously, S.C.O.R.E. players with claim stakes experienced a 0.1% decline in ship employment, while those without saw employment rates decline by 9.6%, further emphasizing the magnitude of the commodity shock.

From June 8th through June 27th, claim stakes produced 13.24 million ATLAS in R4, and EV production totaled another 4.34 million for a total production of 17.58 million ATLAS worth. Resource consumption amounted to 25.04 million. The deficit of 7.47 million ATLAS resulted in a drawdown in player inventories and a rise in prices. As of June 27th, the ATLAS price of toolkits increased by 104%, fuel by 40%, food by 177%, and ammunition by 68% on the secondary market.

Key Highlights:

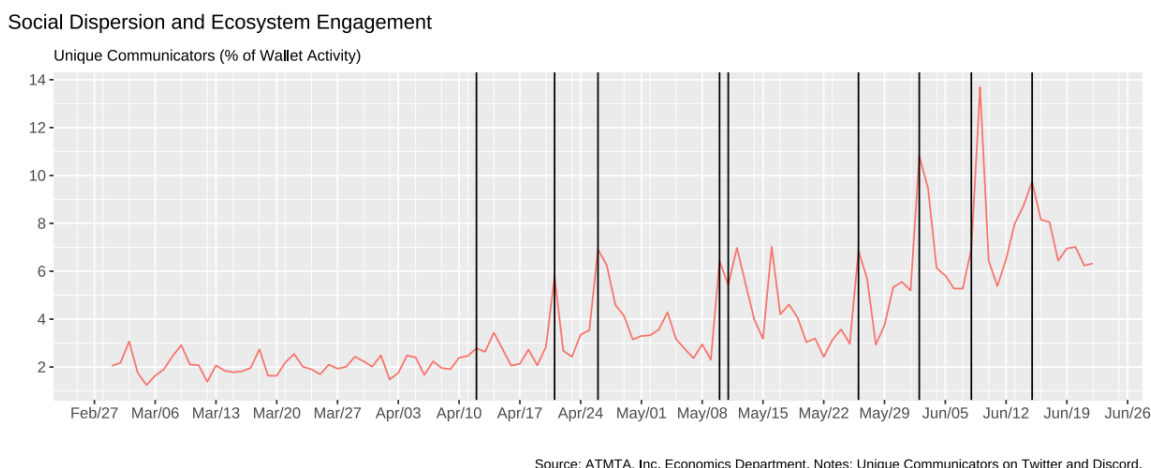
- Ecosystem engagement increased by approximately 200%
- Peer-to-peer trade in resources totaled 19.87 million ATLAS from 6/8 through 6/27
- Claim stakes deposited in Faction Claims totaled 2.57 million USD in VWAP
- EV participants earned an average wage of 147 ATLAS per hour of gameplay
- The size of the ship labor force contracted by 4.2%
- Employed residents and citizens claimed 427.57 million ATLAS

This economic quarterly explores the implications of the new player production economy across Star Atlas ecosystem programs. The pre-existing foundation for this change allowed participating players to benefit, which opened the doors for new questions to be answered. The transition's success can be viewed first through the lens of social engagement and community excitement across platforms.

¹ 2023-06-19 08:51:00

Social Engagement and Excitement

A community's success lies in its ability to foster social engagement and communication. In the case of Star Atlas, a measure of community engagement is the number of distinct communicators on Twitter and Discord as a percentage of daily active users.² This metric, seen in the figure below, provides insight into the level of interaction and enthusiasm within the ecosystem.



Several significant events throughout the quarter impacted community engagement (listed in the table below). These events are also reflected in the figure above as vertical lines. This led the percentage of daily communicators to jump 1.5x from a mean of 2.6% before March 1st to an average of 3.9% after.³ In the last column, we report the engagement ratio on that day relative to the mean engagement before March 1st. This gives us a sense of the relative importance of the event.

On April 21st, ATMTA announced the launch of Escape Velocity. This announcement generated two times the engagement as that of the claim stakes program launch and arguably is the event which kicked off the social intensity we've seen in Q2. Then on May 10th, The Never Alone campaign was announced and launched the next day. June 2nd marked the launch of Showroom 2.1, and 10.8% of the day's player base communicated on Discord and Twitter. This engagement level was 4.2x the pre-Q2 mean. Lastly, the R4 economy was liberalized late June 7th (effectively June 8th). By June 9th, engagement reached an all-time high, whereby 13.7% of all players interacting with Star Atlas programs communicated.

It has been a year since the inaugural release of the economic quarterly. Now, it is essential to reexamine the purpose and essence of the SA Census—a concept that provides a snapshot of the player base, drawing parallels to fundamental ideas like immigration, emigration, citizenship, and residency. These crucial concepts fundamentally shape the population size of a burgeoning nation. In the case of Star Atlas, as well as any other project, comprehending the magnitude of the core player base enlightens us about program adoption and establishes our expectations.

² Distinct wallet interaction with any Star Atlas program or token.

³ 2022-01-02 through 2023-02-28 is the period for the first mean, 2023-03-01 through 2023-06-22 is the reference period for the second mean.

Furthermore, let us venture deeper into unraveling the intricate Star Atlas economic system, which has undergone a remarkable transformation since the liberalization of the R4 economy. Such analysis will prove indispensable in grasping the trajectory of resource prices as they evolve. What better point of departure than the SA Census itself?

The Star Atlas Census

This quarterly marks the official first anniversary of the SA Census. Along with the birthday and the advent of new forms of employment and capital assets, revisiting the guidelines for different census categories will be helpful. The original framework, still in use today, was intentionally created with flexibility and the future in mind. We achieve this flexibility by defining nonresidents, residents, and citizens using a conceptual approach that allows it to grow.

The categorizations center around three primary criteria:

1. Wallet Composition [Star Atlas assets]
2. Gameplay [Game employment]
3. Political Participation [Voting/Long-term money]

These three criteria capture a combination of asset ownership and program participation. Participants enter the ecosystem by owning a Star Atlas asset and move up the ladder by actively playing and regularly participating in ecosystem programs. The commitment to and passion for the project increases with each progressive step. These three criteria separate nonresident visitors, residents, and citizens.

A **Nonresident** owns a Star Atlas asset and is not involved with gameplay. The wallet address is not associated with S.C.O.R.E., EV, or Faction Claims.

A **Resident** owns a Star Atlas asset and is involved with gameplay. The wallet address is associated with S.C.O.R.E., EV, or Faction Claims. Someone is a resident if they meet a wallet condition and employment condition. The wallet condition is that they must own some Star Atlas asset - NFT, POLIS, or ATLAS. The Employment condition is that they must be engaged in nonfinancial employment- i.e., gameplay.⁴

A **Citizen** owns a Star Atlas asset, is involved with gameplay, *and* has POLIS locked in the POLIS Locker.

From the real-metaverse parallel perspective, the difference between residents and citizens is civil rights, such as the right to vote and have a voice in decision-making. Importantly, citizens will never be required to vote, and they can vote only if they choose to. Citizenship is marked by the right to vote. It does not matter the motivation behind entering the POLIS Locker; what matters are the rights conferred upon locker participants.

So to recap, three differentiating components characterize players. Number one is, does the player own an NFT or the ATLAS and POLIS tokens. Number two, is the player actively involved in the ecosystem? Conditional on one and two, does that person have the right to vote?

⁴ As discussed in previous statements - this condition may change, and marketplace traders may be added as employment since they provide a vital liquidity function. However, most of the time - we will consider them as speculators or nonresidents as they are only interested in financial speculation rather than liquidity provision.

Table 2: Star Atlas Census (5-31-2023)

Class	Employed	NFT Owner	Voter	Currency	Freq	Frac	Wealth	WShare
Nonresident Currency	0	0	0	1	87012	55.8	22.92	36.86
Nonresident NFT	0	1	0	1	8512	5.5	0.76	1.22
Nonresident Locked POLIS	0	1	0	0	16090	10.3	1.40	2.25
Residents	0	0	1	1	2219	1.4	2.58	4.15
Citizens	0	1	1	1	430	0.3	0.50	0.80
Nonresident Currency	1	0	0	1	363	0.2	0.01	0.02
Residents	1	1	0	1	31504	20.2	15.90	25.57
Citizens	1	1	0	0	4748	3.0	1.78	2.86
Nonresident Currency	1	0	1	1	11	0.0	0.00	0.01
Citizens	1	1	1	1	5070	3.3	16.33	26.26

What explains the change in the status of players? In total, the ecosystem grew by 4,984 wallets. More specifically, 7,057 wallets entered the ecosystem, and 2,073 wallets left the ecosystem over the quarter. The greatest growth came from nonresident currency holders at 3,158. This represented the underlying flows of 3,527 wallets entering that group and 369 leaving over the quarter.

The second greatest change came from residents, which grew by 987. There was substantial churn underlying this number as 1,902 wallets entered and 915 left residency status. Of the wallets that left, 272 entered nonresident NFT holder status, and 309 became citizens. Of the wallets that became residents, 1,432 came from outside the ecosystem. This change can likely be attributed to the creation of new Solflare wallets in response to the introduction of Escape Velocity.

Citizenship grew by 237 wallets during the quarter. Of the 465 that entered citizenship, 101 wallets came from nonresident status, 51 from outside the ecosystem, and 309 from residents.

EV Participation

Escape Velocity (EV) is one of the newest programs in the Star Atlas economy. It represents the first iteration of the full SAGE economy. In EV, players warp from sector to sector on a 101x101 cartesian plane representing a galaxy in the Star Atlas universe, Galia. Once in a specific location, players can commit a scan action in which they discover loot. Loot is distributed according to a fixed probability loot distribution. One of the primary ways we have fueled the new R4 economy and the exciting new game mode is by discovering Food, Fuel, Toolkits, and Ammo in EV. Players find variable-sized bundles in EV, and all of their findings are delivered to them on a regularly scheduled cadence – about once a week. Below we highlight some of the exciting findings from EV.

As of 6/28, there have been 6562 distinct wallets with fleets in Escape Velocity. The market value of prizes found was 43.2 million ATLAS, and the total player hours were 254,487. The average number of warps per player was an impressive 9,801. Players earned an average of 170 ATLAS per hour from the start through 6/28.

The concept of technological growth in macroeconomics is evident in EV. Phantom wallets are notably slower than Solflare wallets and are used by the fastest and most productive players in EV. We find that players who use a more technologically advanced wallet, Solflare, have nearly 16 times the loot earnings of those with Phantom wallets.

The other issue is the presence of bots. For example, the gap between Solflare and Phantom wallets narrows if we distinguish wallets that play twenty or more hours daily from those that have activity for less than twenty hours. After considering bots, Solflare wallet players spent on average fifteen days playing at nearly 6 hours per day. Phantom wallet users spent, on average, seven days playing at 2.5 hours per day. By that metric, Solflare wallets make EV more enjoyable for those that use them. This has translated into more warping, loot found, and thus higher ATLAS wages per hour of gameplay.

Table 3: EV Summary: By Wallet Type and Time Spent Playing per day (04/27 - 06/28)

By Avg Hrs per day	Wallet Type	Wallet Number	ATLAS per hr	Per Wallet					
				Loot Found	ATLAS Value of Loot	Warps	Days Played	Hours	Hrs per day
Greater than 19 hrs per day	Other	4	155	25333	117151	229240	36	756	21.0
	Phantom	3	103	8502	42183	62145	19	409	21.5
	Solflare	53	365	40177	186491	289085	24	512	21.3
	Total	60	334	37603	174653	273749	25	523	21.3
Less than 20 hrs per day	Other	312	107	585	2776	4658	7	26	3.9
	Phantom	4718	28	163	508	1132	7	18	2.5
	Solflare	1472	230	3745	20029	27920	15	87	5.9
	Total	6502	147	994	5036	7366	9	34	3.8
Total		6562	170	1329	6587	9801	9	39	4.3

R4 Liberalization

On June 7th, it was announced that the DAO would stop selling R4 to unleash the peer-to-peer resource economy. Several steps were taken to smooth the transition toward resource liberalization.

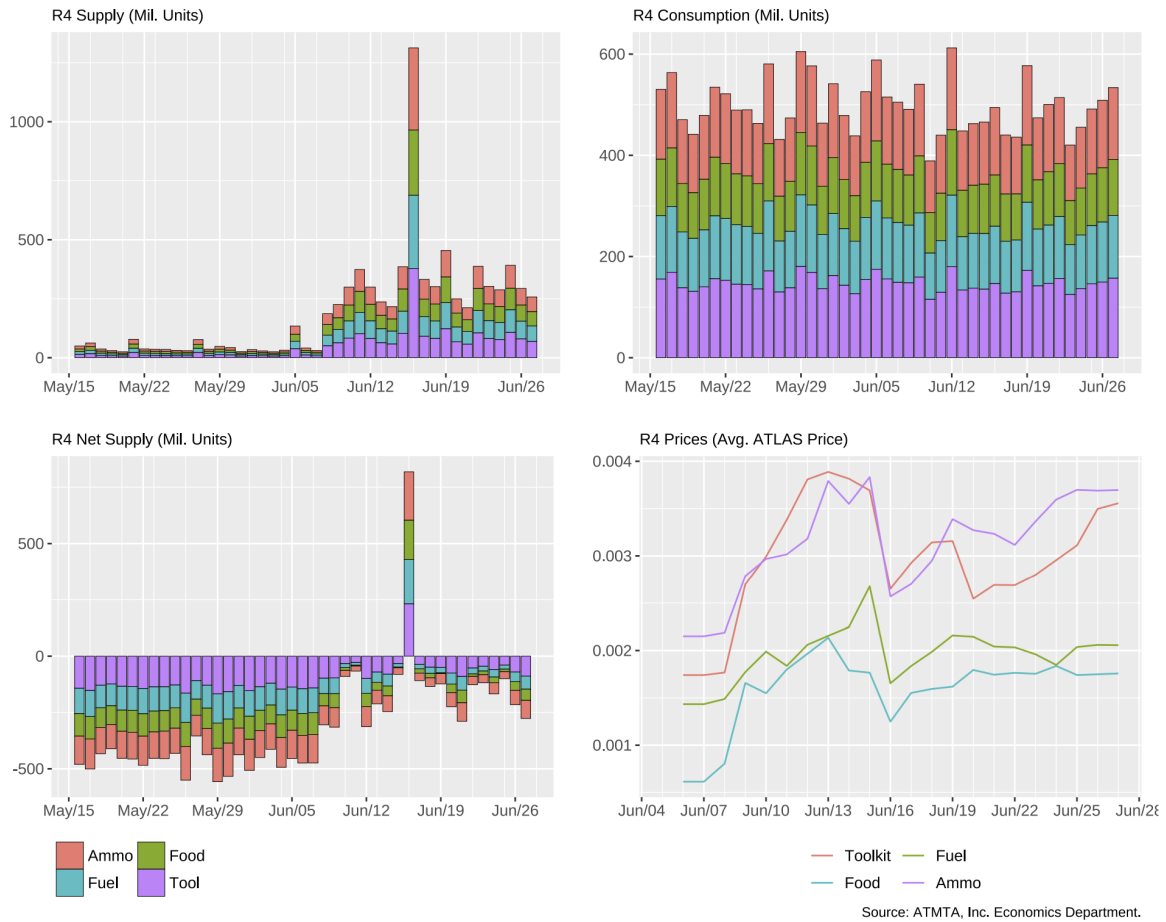
- First, the DAO provided the market with one month's worth of R4. This included 4.1 billion in ammunition, 4.4 billion toolkits, 3.6 billion in fuel, and 3.1 billion in food.^{5 6}
- Second, claim stakes production increased substantially. As a result of this change, the potential output for claim stakes currently staked increased by a factor ranging between 4.2x and 8x, depending on the claim stake tier.
- Third, R4 loot sizes in EV increased by a magnitude of, on average, 8x.

The aggregate summary of the R4 market is presented in the figures below. R4 supply is the amount of R4 harvested and withdrawn from claim stakes in Faction Claims plus the amount distributed through Escape Velocity (top-left). The huge spike on June 16th is the first EV rewards distribution post-R4 liberalization.

⁵ Of the 725 last purchasers, eight took home 31% of the total sale.

⁶ One month of R4 was determined by current R4 Demand in SCORE programs. That is, the DAO provided enough R4 to cover one month of R4 demand, averaged over the last 6 months.

R4 Summary



R4 consumption is the amount deposited into Faction Fleet less the amount withdrawn (top-right). Net consumption has been roughly constant throughout the period.

Net supply is the supply of resources less their net consumption (lower-left). Since net supply is negative, there is a shortage of R4 currently being produced in the economy. This deficit is reflected in the ATLAS prices of resources (lower-right). For example, the EV distribution supply shock resulted in a sharp decline in prices on June 16th. This was one clear example of cause and effect, but what about ATLAS prices since then? Why have prices not consistently risen in the face of persistent shortages? What is the cause of these deficits?

To answer these important questions, our mission is to evaluate and comprehensively assess this dynamically evolving landscape thoroughly. We start by focusing on the primary driver of resource demand: Net consumption, which currently operates through the S.C.O.R.E. system.

R4 Consumption

The consumption of R4 resources is determined by the net deposits into S.C.O.R.E., excluding withdrawals made by fleets. This applies to all resources except toolkits, which are immediately burned upon deposit. Currently, S.C.O.R.E. is the sole source of demand for R4, although this will change as gameplay progresses.

The consumption of R4 is intricately tied to the utilization of ships in S.C.O.R.E. The factors that affect ship employment will also impact R4 consumption and vice versa.

Notably, an increase in R4 burn leads to a greater emission of ATLAS into the ecosystem. While there used to be minimal passthrough from the R4 markets to S.C.O.R.E., now there is potential for the R4 market to drive the size of the labor force. Consider that the emissions of ATLAS from S.C.O.R.E. are fixed, as is the quantity of R4 burned by each ship. However, the price of each unit of R4 is now allowed to fluctuate.

This particular set of conditions creates an adjustment mechanism, unlike anything we have seen before. It enables an external adjustment mechanism for the S.C.O.R.E. and ship markets, with crucial dependence on S.C.O.R.E. Let's examine two hypothetical scenarios for S.C.O.R.E., keeping in mind that these are just two possibilities among many:

Scenario 1: When the price of R4 is higher, it cuts into the net margins of S.C.O.R.E. earnings. This means that the returns for managing a S.C.O.R.E. fleet are reduced in ATLAS terms. We have observed in previous analyses that player labor force participation strongly reacts to changes in ATLAS/USD. In this case, the demand for R4 will likely decline due to lower earnings. Reduced demand for employed ships will soften ship prices, exerting downward pressure on R4 prices and ultimately leading to a reversal in net margins.

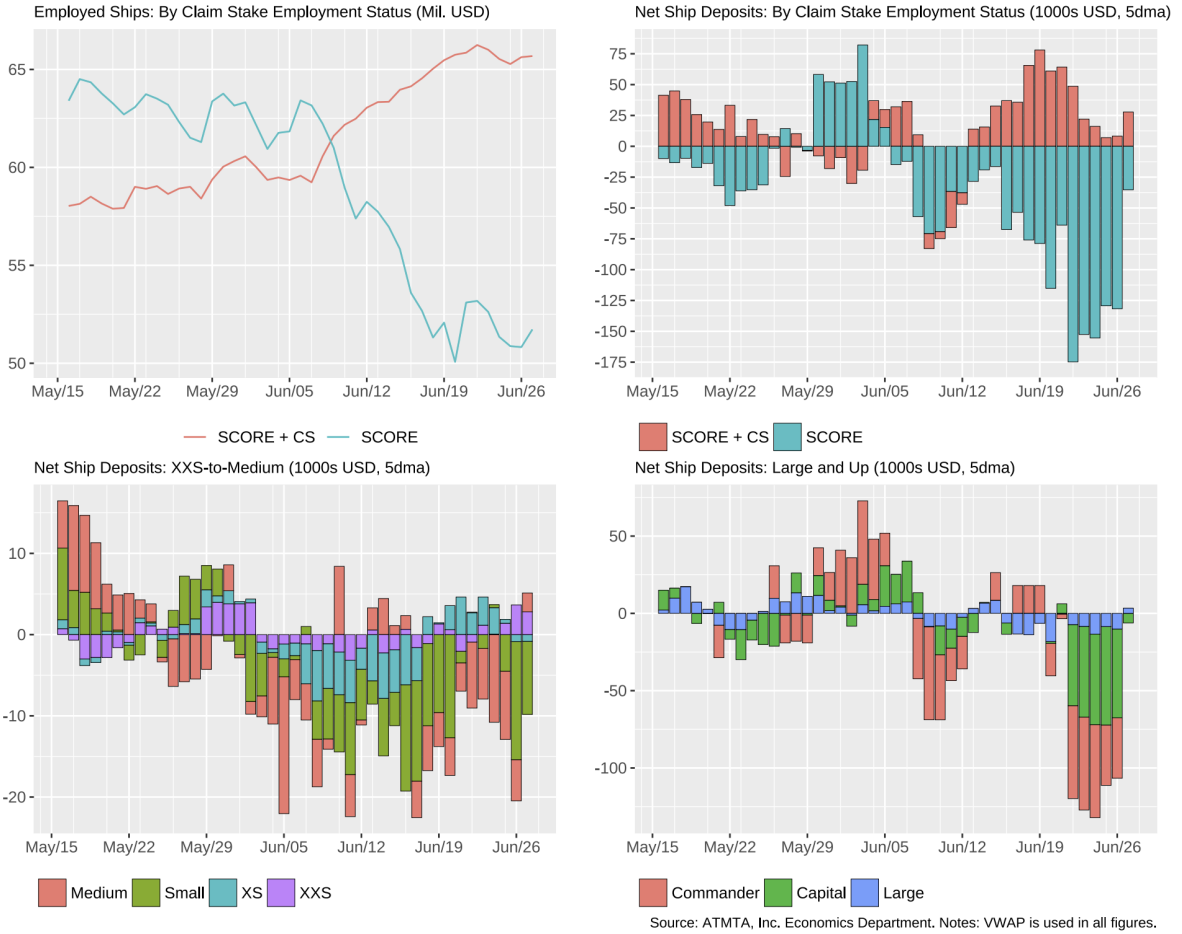
Scenario 2: This scenario involves falling R4 prices. In this case, real ATLAS wages are higher than before, creating an incentive for gameplay and employment. Lower R4 costs relative to ATLAS earnings would incentivize greater labor force participation, which is favorable for ship prices.

These two basic examples demonstrate the indirect relationship between R4 price and demand. The price directly impacts the take-home wage in ATLAS, a primary factor driving changes in the employment rate and the size of the labor force. As mentioned earlier, there is likely a feedback mechanism at play, where R4 prices and supply influence the employment of ships in S.C.O.R.E. and, therefore, R4 demand. To test our assumptions consider the differences in behavior between players with claim stakes and those without.

The VWAP of employed ships by those with and without claim stakes is revealing (see the top-left figure in the panel below). For claim stake owners, the VWAP of employed ships has risen by 6.76 million in USD, and for those without stakes, it has declined by 10.54 million.⁷ It is challenging to fully separate the decline in S.C.O.R.E. employment from transitions between players with and without claim stakes. Looking at net ship deposits by these two groups provides a more useful metric.

⁷ Period from 6/7 through 6/23.

Employment and Net Ship Investment: By Claim Stake Employment Status and Ship Class



On net, players with claim stakes have deposited additional ships amounting to 0.42 million in VWAP, while those without have withdrawn 1.4 million since June 7th (up until June 23, 2023).

Differences in employment rates tell a story as well. Between June 7th and June 20th, the ATLAS price of toolkits increased by 38%, fuel by 40%, food by 107%, and ammunition by 42%. During the same period, the VWAP-weighted average employment rate of all ships in S.C.O.R.E. decreased by 3.7%. Players with claim stakes experienced only a 0.1% decline in ship employment, while those without saw employment rates decline by 9.6%. The decline in employment rates suggests that net wages have declined for players without a source of R4 production (not accounting for Escape Velocity R4 distributions).

All these factors indicate that the demand for R4 will be influenced by its price, particularly among players without stakes or alternative means of resource production.

R4 Production

The analysis of R4 supply is crucial for understanding the production side of the economy. The supply of R4 resources and democratization have significant implications for peer-to-peer opportunities and ATLAS net emissions. This affects the value of ATLAS, as the purchase of R4 was a significant token sink.

It's important to consider not just the production quantity but also the distribution of producers and the challenges they face. We begin with the most prominent source of R4 - Faction Claim Stakes.

Claim Stakes Production

The visible resource production from claim stakes is the sum of resources harvested and R4 in storage when a stake is withdrawn. Since April 12th, 2.57 million USD in stakes have been deposited into S.C.O.R.E.⁸ Similar to ships, claim stake net deposits are the sum of initial and partial deposits, less withdrawals. The cumulative sum of net deposits is the capital stock.

The potential output per day of the deposited stakes is presented in the table below.⁹

Table 4: Claim Stake Capital Stock and Daily Potential Output (in Mil. of Units)

Tier	Net Deposited (Mil. USD)	Ammunition	Food	Fuel	Toolkits
Claim Stake Tier 1	0.37	16.53	16.92	25.13	24.51
Claim Stake Tier 2	0.51	26.06	25.09	23.16	27.02
Claim Stake Tier 3	0.60	14.87	14.48	16.52	15.42
Claim Stake Tier 4	0.61	14.61	15.19	16.05	16.05
Claim Stake Tier 5	0.48	16.34	16.64	13.31	16.94
Total	2.57	88.40	88.32	94.16	99.93

It is important to observe the level of participation in the claim stake program to gauge its potential impact on aggregate supply (see the top-left plot in the figure below). As of June 23rd, 4,001 distinct wallets had claims staked. Of these, 3,448 were linked to S.C.O.R.E. employed ships. The total number of distinct wallets with employed ships was 12,008. This puts the fraction of R4 consumers with claim stake production capabilities at 28.7%.¹⁰ The other 71.3% will be highly sensitive to the price of R4 in the secondary market, and it will be this group - along with others running R4 deficits - in greatest need of future claim stake enlistments. This group also makes up the core consumer base for resources.

Higher resource prices have cut into ATLAS earnings, increasing players' desire to purchase and deploy new claim stakes (see figure on the lower right).

The daily net surplus of R4 for claim stake producers with employed ships reveals chronic shortages of tools and ammunition made light by the weekly trends in harvesting (see top-right figure below).¹¹ This shows a unique characteristic of outstanding capital stock. The supply of R4 from claim stakes is not evenly matched to the net resource demands of ships in Faction Fleet.

For example, on 6/23, the potential daily output of claim stakes could meet 94% of net fuel and 100% of food deposits but 79.3% of ammunition and 78.6% of tools deposited. This suggests that when claim stakes deposited meet 100% of toolkit and ammo demand, they will overproduce fuel and food by 20%.

⁸ Total VWAP value; through June 27th, 2023.

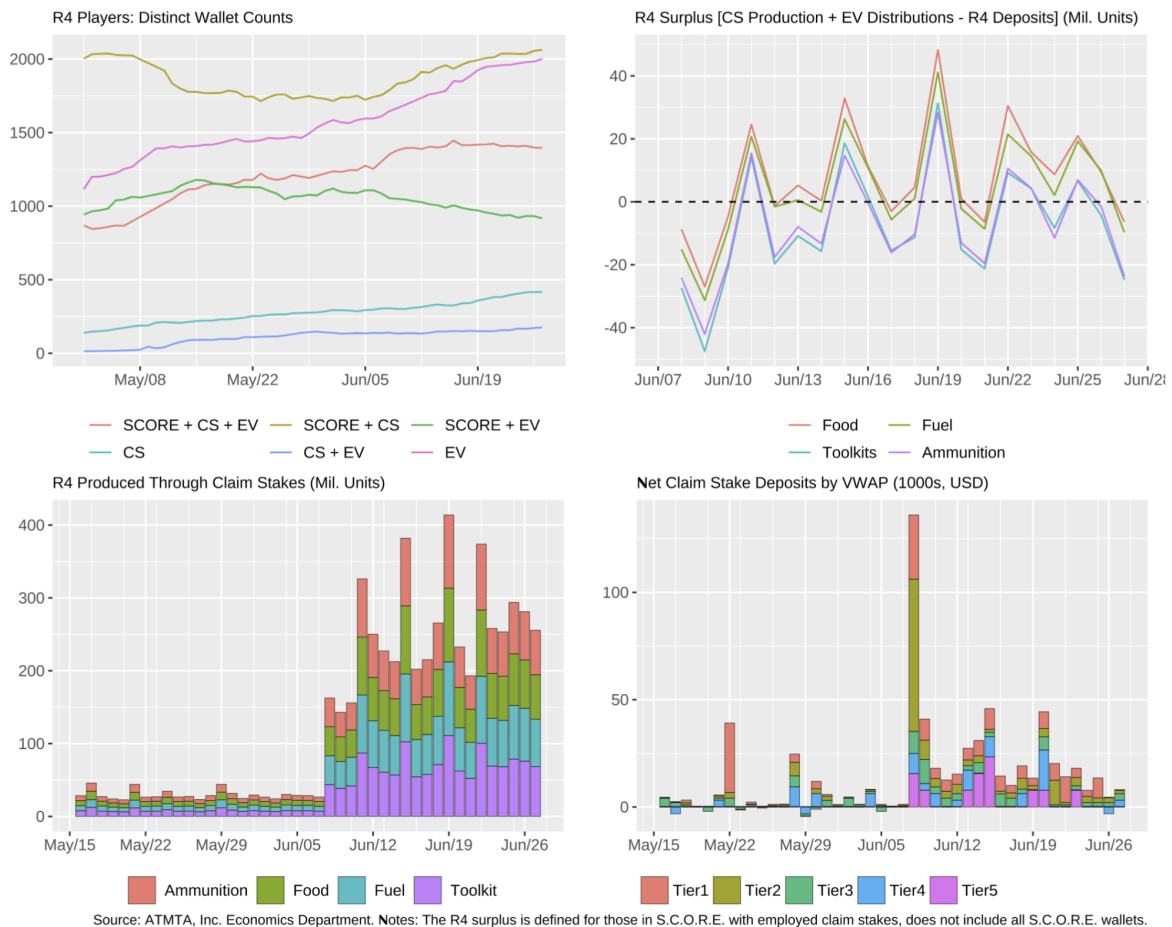
⁹ As of June 27th, 2023; output presented at daily rates, in millions of units. Net deposited is in VWAP.

¹⁰ Another 553 wallets are linked to Faction Claim Stakes but are not associated with employed ships - these are pure producers.

¹¹ In the figure the R4 surplus is the sum of claim stake harvests plus distributed from EV less net deposited in Faction Fleet. It is only for claim stake producers with employed ships.

Just as there is an employment rate for ships, the average VWAP-weighted employment rate has been 89.3%.¹²

Claim Stake Production and S.C.O.R.E. Participation



Claim Stake R4 production is immediately available to players, providing a distinct advantage to owners. This contrasts with EV, where R4 produced is only available to players in a weekly resource dump.

Escape Velocity Production

The production of R4 from EV is the sum of resources that are claimed.¹³ As of 6/24, there are 4,431 distinct wallets with fleets in Escape Velocity. 3,963 wallets have participated in EV with an associated S.C.O.R.E. wallet, so the potential for EV production to find its way into S.C.O.R.E. could be significant and direct.

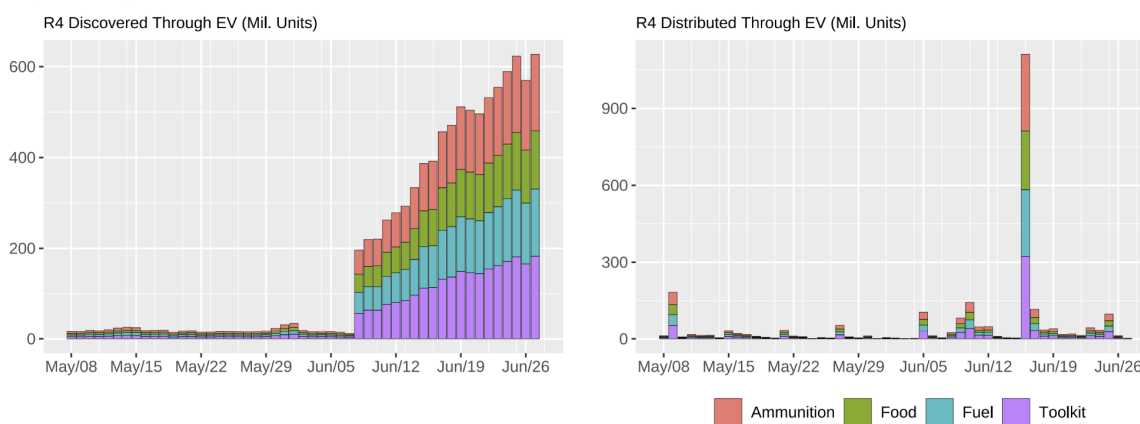
EV production will depend on what is discovered and distributed. When the loot is found is typically not when it is distributed and claimed.

¹² Period from 6/8 through 6/23 using employment rate calculation equivalent for ships. The rate is adjusted down to 84.6% if we don't allow for stakes to drop out of the labor force.

¹³ For the EV prize distribution data: See the program ID 'gdrpGjVffourzkdDRrQmySw4aThr8a3xmQzzxSwFD1a' and the program instruction, 'Program log: Instruction: Claim'.

The two figures below illustrate the differences. This temporal friction can bottleneck supply from coming into player inventories.¹⁴

Escape Velocity: R4 Discovered and Claimed



EV as an R4 delivery mechanism is imperfect for at least two reasons.

As mentioned, the player must claim the reward after finding the prize. This can take a week before the distribution takes place. Therefore, large amounts of R4 prizes will build up before being delivered. Then it is delivered all at once. Players relying on EV as an R4 supply to their ships will have to wait until the distribution to restock their ships. By the time the supply hits the market, it is of a substantial amount, which is enough to act as a supply shock, thus pushing down R4 prices. We saw this at play during the distribution on June 16th.

The table below highlights the issues. The first row shows the cumulative amount of R4 discovered by the end of the last distribution cutoff on 6/15. The second row shows the total amount of R4 distributed since the start of Escape Velocity. The third row shows the difference. For example, of the 805 million ammunition eligible for distribution, 678 million has been claimed, leaving 126 million units, an entire day's worth of consumption, unclaimed. The fourth row shows the cumulative amounts eligible for the next distribution, 908 million units or a full 7 days' worth of S.C.O.R.E. consumption for ammunition. The last row shows what has been discovered since June 22nd and will be eligible for the last distribution when Escape Velocity sunsets on July 7th.

Table 5: Escape Velocity: R4 Discovered vs Distributed (Mil. of Units)

Summary	Ammunition	Fuel	Food	Toolkits
Discovered by 6/15	804.7	706.7	619.2	870.8
Total Claiming of Items Discovered by 6/15	678.3	595.0	522.0	735.0
Items Not Yet Claimed (through 6/28)	126.4	111.7	97.2	135.8
Discovered from 6/16 - 6/22	907.6	789.0	688.8	977.6
Discovered from 6/23 - 6/28	936.6	816.3	711.7	1012.1

The second reason is the uneven distribution of prizes delivered. For example, the maximum distribution of toolkits to a single wallet on the 16th was 9.7 million, the average was 470 thousand,

¹⁴ In addition, there is a cost to claiming the prize which is associated with the fee to create the token account. This will further reduce the incentive to claim, and therefore the amount of R4 that actually makes it into player inventories.

and the median was 31.1 thousand. The total distribution of toolkits was 323.4 million. Over the entire period, the average-to-median ratio has averaged 11.2, indicating a substantial difference in outcomes between players.

The Peer-to-Peer Economy

With the recent liberalization, R4 has become more important and challenging to understand from a statistical point of view. In an attempt to synthesize the previous sections, the following table summarizes the R4 economy by breaking down the production and consumption of R4 by seven mutually exclusive Economic Players (denoted in the Category column in Table 6, also see the figure below).¹⁵

In general, those that do not participate in S.C.O.R.E. will be net producers of R4. Those participating in S.C.O.R.E. naturally need R4 and will be consumers.

R4 Volumes by Producers and Consumers (1000s, ATLAS)

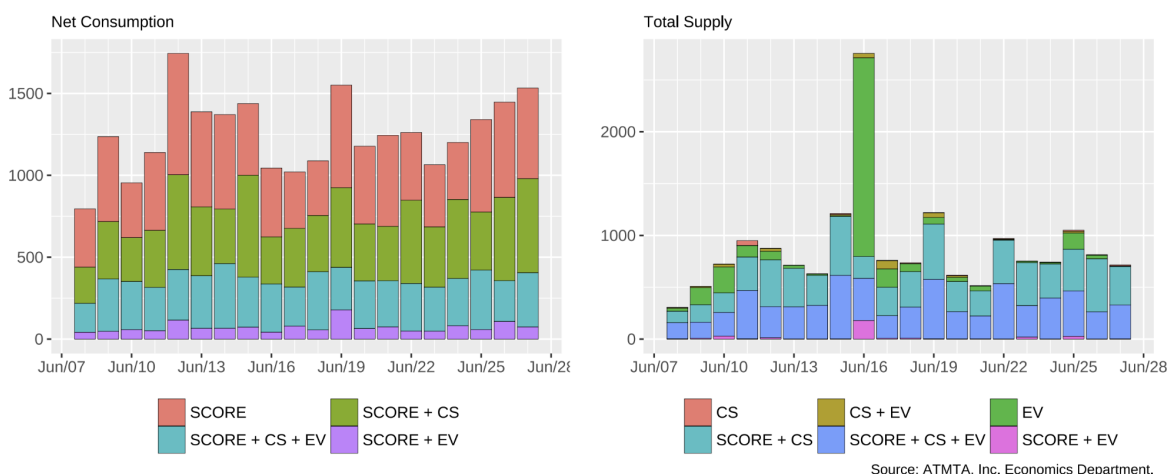


Table 6: R4 Summary by Group, Daily Average Values in ATLAS (6/8 - 6/27)

Major Grouping	Category	CS Production	EV Production	Net Consumption	Net Surplus	Net Purchases	Counts
SCORE	SCORE			480685	-480685	295284	7918
SCORE	SCORE + EV		15040	71473	-56433	34842	982
CS	SCORE + CS	340590		404802	-64212	-149026	1960
CS	SCORE + CS + EV	310754	29917	295175	45496	-53414	1405
EV	EV		160809		160809	-70259	1851
CS	CS	6689			6689	-710	353
CS	CS + EV	3950	11087		15037	-3771	151

The table helps us to learn more about the flow of resources within the economy. S.C.O.R.E. wallets without claim stakes are found in the first two rows of the table. This group consumed 11 million ATLAS worth of R4 and produced .3 million in R4 from EV. They purchased 9.4 million and sold 2.8 million ATLAS in R4.

¹⁵ The table also has a column denoted "Major Grouping", this is the classification used to create some of the figures below. Each column is the daily average value in ATLAS from June 8th through June 27th.

S.C.O.R.E. plus CS wallets produced 340.6 thousand per day and consumed 404.8 thousand daily, leaving them with an average net deficit of 64.2 thousand ATLAS in R4. Even with this deficit, they managed to be the largest supplier to the marketplace, averaging net sales of 149 thousand ATLAS.

S.C.O.R.E. + CS + EV wallets produced 310.7 thousand per day through claim stakes and another 29.9 thousand from EV. This group consumed 295.2 thousand per day, leaving them with an average net surplus of 45.5 thousand ATLAS in R4. This surplus allowed them to be the third largest supplier to the marketplace, averaging net sales of 53.4 thousand ATLAS.

The second largest sellers are EV-only wallets, which collected 160.8 thousand ATLAS of R4 per day and sold 70.2 thousand of it per day.¹⁶

To summarize, S.C.O.R.E. exclusive wallets, the largest group, were also the largest net consumers - and, thus, net purchasers - of R4. The vast majority of this supply came from the production of those wallets participating in Faction Claim Stake production and Escape Velocity. In other words, there is a group of S.C.O.R.E. players who do not participate in the production side of the economy and instead purchase their required R4 from those who *do* participate in R4 production. Note the large group of individuals who are only participants in EV. Recall from earlier that this group is likely a subset of the S.C.O.R.E. wallets in the form of Solflare wallets, exclusively created and used for EV production.

The figure below presents the net surplus and net purchases by major grouping (first column in the table above).

Secondary sales of R4 represent the peer-to-peer economy. This is where surplus players sell their excess resources to players running a deficit. The value of the peer-to-peer trade in resources totaled 19.87 million ATLAS from 6/8 through 6/27. During this time, claim stakes produced 13.24 million ATLAS in R4, and EV production totaled another 4.34 million for a total production of 17.58 million ATLAS worth. Resource consumption amounted to 25.04 million. The resulting gap was a deficit of 7.47 million ATLAS.

As a result, players have had to consume out of existing inventories.¹⁷

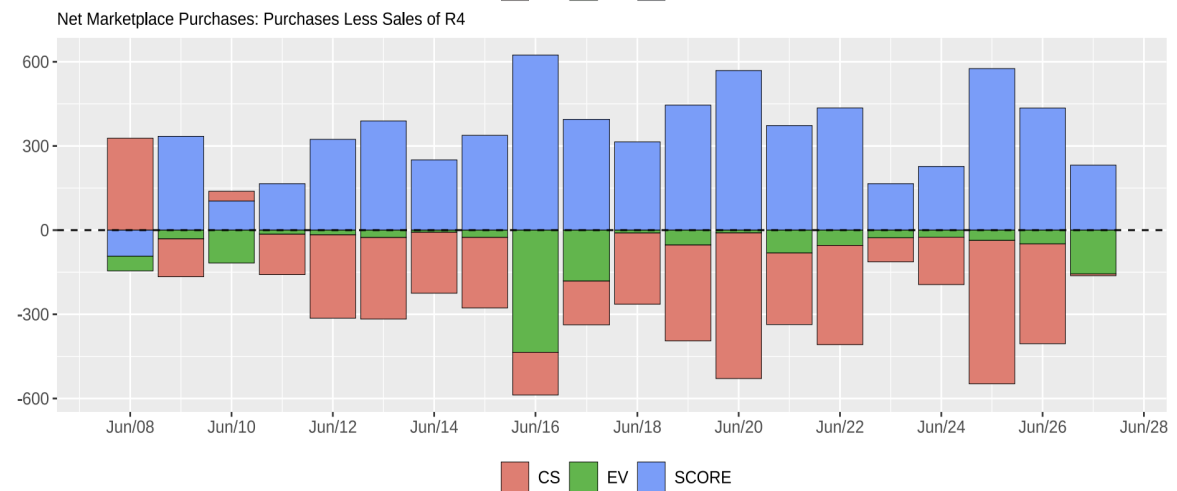
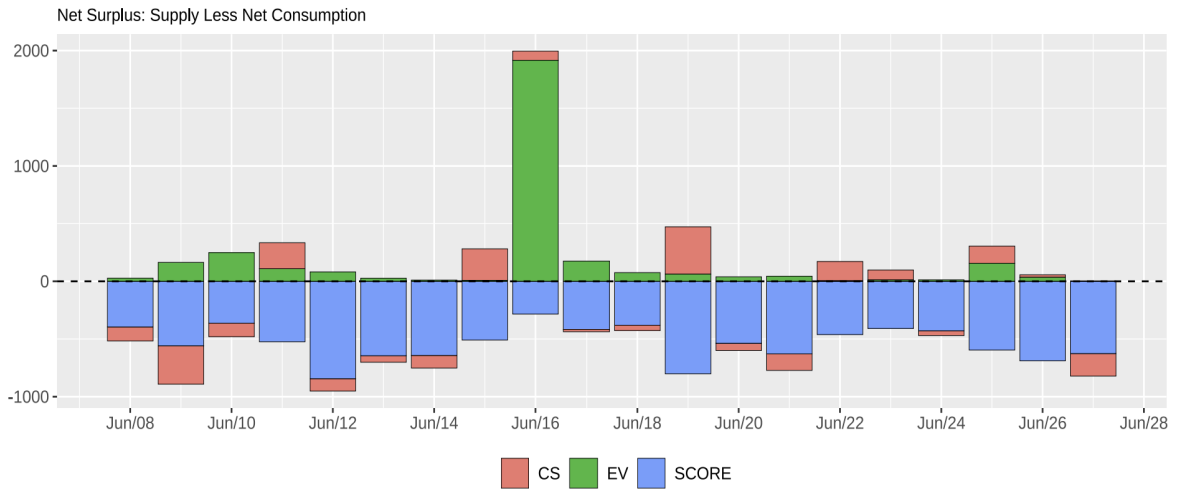
Since June 8th, player inventories have declined by 550 million units of ammunition, 340 million food, 244 million fuel, and 728 million toolkits. The outsized drawdowns of toolkits and ammunition result from the uneven timing in the distribution of EV loot, along with the structural undersupply of the two resources from claim stake production. These structural factors help to explain the price outperformance of both toolkits and ammunition, and the persistent resource deficit explains why prices have been higher overall.

Higher resource prices have cut into ATLAS earnings which have had knock-on effects for the rest of the economy. In particular, it has led to a decline in consumption-heavy economic activity like ship employment and a rise in production-oriented employment such as EV and claim stakes.

¹⁶ EV-only wallets collected 3.2 million ATLAS in R4 and sold 1.4 million into the market (44.7% of that collected).

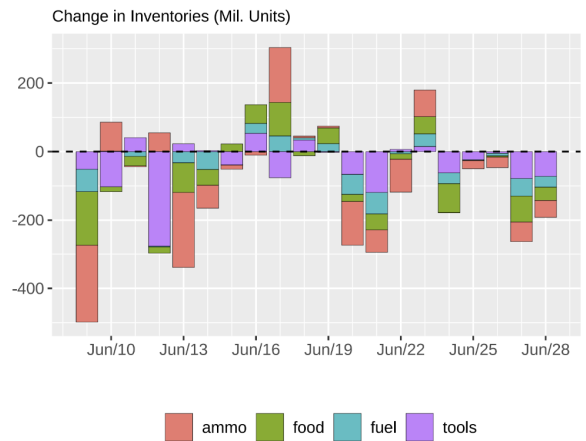
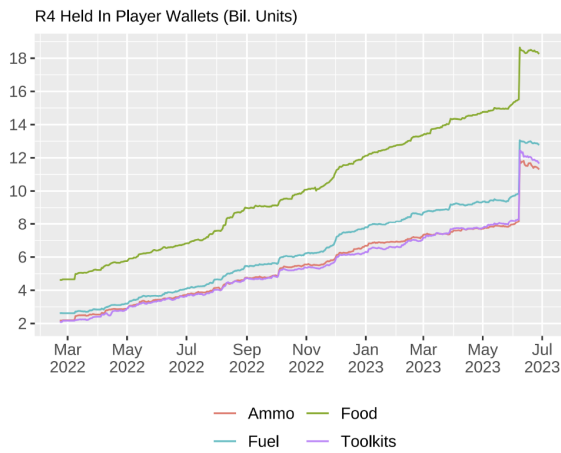
¹⁷ Pre-R4 liberalization, inventories had generally outpaced the demand. This is evidenced by the slow upward climb in wallet R4 inventories. The inventory buildup has been gradual since most purchases happen over a month. This was, of course, until 6/7, when the DAO fixed the remaining amount of R4 it would sell to the market at a month's supply. This explains the large jump in R4 held in player wallets over one day. Since then, inventories have been a shock absorber along with the marketplace. This was anticipated by the Economics team and has smoothed the transition period for the community.

R4 Net Surplus and Net Purchases by Major Group (1000s, ATLAS)



Source: ATMTA, Inc. Economics Department. Notes: Net purchases is the ATLAS value of purchases less sales of R4. SCORE is any wallet with a ship in Faction Fleet's labor force that doesn't have an enlisted claim stake. CS are all wallets with enlisted claim stakes - and do include wallets with fleets in Escape Velocity and Faction Fleet. EV are solely wallets with fleets in Escape Velocity and exclude any other program interaction.

R4 Inventories: Level and Change



Source: ATMTA, Inc. Economics Department.

Ship Employment and Earnings Summary

Aggregate daily ATLAS wages declined 6.1% from March 1st through May 31st. Average wages declined by 1.4%, the employment rate per ship decreased by .5%, and the labor force contracted by 4.2%. The largest factor impacting aggregate wage growth was the decline in the labor force.

Table 7: ATLAS Earnings Growth Decomposition

Date	ATLAS Earned	Average Wage	Employment Rate	Labor Force
2023-03-01	4.79 M	15.5	78.2%	397
2023-05-31	4.51 M	15.3	77.8%	380
log change	-6.1%	-1.4%	-0.5%	-4.2%

Net ATLAS Emission Summary

The DAO collected 29,196 USDC and 2,282,638 ATLAS from marketplace fees over the quarter. It earned an additional 76,365,440 ATLAS from the sale of resources.¹⁸ From March 1st through May 31st, residents and citizens claimed 427.57 million ATLAS (+4.7 million per day) in gross employment earnings. In addition, 78.64 million ATLAS (-.86 million per day) flowed back into the DAO from the sale of resources and trading fees. 161.7 million ATLAS was locked (EOP) (-1.78 million per day), and lastly, 26.5 million ATLAS was held in Escape Velocity (-.29 million ATLAS per day). After accounting for the sinks, the locker, and EV, net ATLAS emissions totaled 160.73 million (or +1.77 million ATLAS per day).

¹⁸ The DAO treasury wallet is CwnarNh7FEqZMmffFjRyWj54RecyS7zwFg1CxfzNudi.