

Economics - How the game works.

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-Empire: Justice, on realtime server.

For a new player you are fairly limited in the amount of ways to make credits, as you won't have the capability to train your minister to high levels, or the time to research your infrastructure technology to high levels either.

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1. Overall description of different strategies

In the long run a housing tax setup is the best, you may hear people tell you that it is, but Ill explain why.

First of all your housing infrastructure research directly increases your population, but the tax minister on the other hand, increases the tax from your population, the relevance of this, is that the effect of your minister, is the multiplied by the affect of your infrastructure. So basically since the maximum research you can reach is 255, so 2550% which goes to 25.5x, as high as it starts out with, and assuming you get your minister to 999 levels in tax. The total increase to your income is $(999/20+1 +2(\text{for } 5000 \text{ loyalty}) * (25.5+1)$ which is 1403, times higher then it would be with just your basic taxing. The effect of the housing bonus also does not get affected by the type of system its on, as high bonus to population, only increases the rate at which it increases, the maximum effect is still the same. The overall increase is then multiplied by the racial bonus to tax from population (or racial penalty in the case of most of the races). For a new player you are just limited to Collective, A-miner, and Terran tax. Comparing the different races, the A-miner makes the most income from taxation, as that race gets a +20% bonus to income. The Terran and

the Collective are fairly similar, as terren get 85% of normal tax, and the colletive get 30% of normal, but since they get double population as their racial bonus, it is essentially 60% of normal. I will talk about the advantages of the different races later.

1.1 Mining

Since for all other forms of income generation the effect of the minister is just added to the effect of the research, take mining and farming for exampl. Mining can get 820% for a rich planet, another 999/20 for a mining minister, and another 2550% for maximum mining research. The overall effect of mining is $51+26.5+8.2$, before racial bonus. This adds up to 85.7 times your base resource income. Farming, commercial and industrial all have the same effect (which is then still before the racial bonus). The base mineral generation rate is from what I can see is 0.07 per planet per mine, and another 0.05 ore per planet. Since most minerals cost about 600 (on a realtime server they average out to about that, some more some less), and the price of ore generally sticks to about 4500 (again on a realtime server), each planet before bonuses earns $0.27*600 + 0.054*4500 = 267$ credits per planet, and this is without any racial bonus, or research! This is the best way for a newer player to earn money directly, after the bonuses it gets to be about 22,882 credits per planet. Yes this is exceptionally high, but there are 3 major downsides to mining, even though you earn a high amount of credits. The first one is, you can only mine one system at a time, so you cant spread your systems out and you are forced to put all your eggs in one basket, making it easy for people who want your planets to take them, so you lose planets very fast, and it sort of limits the amount of planets you can have at once before you become too juicy a target. The second downside, is that to mine, you must use a turn directly to mine, it isnt a passive income generation, so you cant research or anything if you just want to mine. Although mining generates so much income you can afford to burn some turns researching, you can never really spend all your turns researching. And lastly the downside is that mining is market dependant, for the most part if you put your goods up smartly they will always sell fairly fast, but occasionally people try to put all the minerals they stockpiled on for a relatively low price, right after you put your minerals on, and they will undercut you, forcing you to wait 48 hours to get it back, this in itself isnt crippling if you spread out what you put on the market over time, but it can be really irritating.

(Note, there is also a base amount of mineral generation if you have no mines whatsoever, basically you can mine 1% of the minieral that that type of planet produces with 0 mines, in otherwords, 10,000 planets will produce 100 minerals, before racials).

1.2 Industrial

Industrial is essentially useless for income, for industrial, what it really does, it takes raw material (which is generated by farming as a byproduct) and converts them to consumer goods. I know it is described in the main site, but what it does for you, is that since with a big industrial strategy, there is no way you can use all the goods yourself for the 5 credit value, you must put them on the market for the 4 credit value, and since the raw material takes 1 credit to buy, you only get a 3 credit profit per consumer good you produce. Since a industry without bonuses at all will produce 1 consumer

good, the maximum you will be able to produce, even with maxed out technology, and minister even on a heavy planet is 83.7 (which is then multiplied by your racial bonus), so that's a total of 85.7×3 credits profit = 257.1 credits generated per planet, which is almost nothing compared to the amount of time you got to sink in to get the technology and minister maxed.

1.3 Commercial

Commercial seems like it's good for a newer player, as it does generate income, and you are able to see the effect way sooner than you can with a tax strategy, from what I can tell, each commercial building generates 5 credits directly. So after maxing your minister and technology, you would be earning $85.7 \times 5 = 429$ credits per planet, before racial modifiers, which is almost as bad as industrial, but slightly better.

1.4 Agriculture

Agriculture on the other hand, will bring in a decent amount of income fairly fast, and it is a passive generation at that, that means you can gain food just using a turn for anything. Each farm earns one food before any bonuses, since each food sells for 15, you will gain 15 credits before bonuses for each farm, also you gain raw material, which usually sells for 1 credit each, so makes you a total of 16 credits. And again as the above you can get it up to 85.7 times your base amount, which is 1371 credits per planet per turn before racial bonus, which is obviously much higher than either commercial or industrial.

1.4 Tax

And the moment you've been waiting for, the breakdown on tax generation. To sum it up fast, each population point gives you 0.5 credits of tax before any bonuses, each housing planet earns give you 10 population points, each population eats 0.1 food per turn, or 1.5 credits, the amount they eat is constant though, it is virtually nothing compared to later on in the game when taxing earns you large amounts of income. So adding those up each housing gives you $(10 \times (1 + 0.1 \times \text{research}))$ population, and each population gives you $(0.5 \times (1 + (0.05 \times \text{tax minister level}) + \text{loyalty}/2500))$. Without a tax minister, and 0 loyalty, you lose 1 credit per population a turn, or 10 credits for each planet assuming you have maximum population on each planet. This is why being a tax build doesn't seem very good when you first start, as you must have a tax minister in order to even break even! Even with 5000 loyalty, you will just break even with no tax minister. But using the figures from earlier, 1403 times your base amount, you can get up to about 7000 credits per planet per turn (before racial), and unlike mining, you generate credits directly so you don't have to use a turn specifically to mine, and you also have the option of spreading the population out on all your planets, to minimise the effect of a successful attack on you. Another bonus is that due to the high population you will have your empire level will be very high compared to any other strategy. A side effect of the empire level is researching the projects that would otherwise be unavailable, also it will make you far more valuable as a vassal to a lord than just a miner.

2. Comparing the different strategies - How, and Why.

2.1 Taxing to Agriculture

Looking at all the different strategies, it seems obvious that taxing and mining are the best ways to go, with agriculture as a close 3rd, being only 1/5 as good as tax. Comparing agriculture to taxing, a question one might ask is why would anyone choose agriculture over taxing. The reason for this is that it is far easier initially to pull in a large profit compared to taxing. As stated previously, taxing loses money at first, and although it doesn't take too much to break even, it takes a lot of time and money training the minister to pull in a hefty profit. Agriculture on the other hand, which is also a passive income generation ability, it is relatively easy to get good money in soon, after all the collective gets +100% farming bonus, and it isn't too hard to explore yourself some farm worlds.

Assuming everything you have with the agriculture setup is 1/2 of the maximum that it can be, for example, minister is lvl 500 in farming, farm planet is lvl 5, infrastructure research is 128, then you will pull in almost exactly half of its maximum possible total income, which is $1/2 * 1371 * 2$ for collective racial bonus, so you would be still getting 1371 credits per planet. On the other hand, if even just the minister and the technology and the loyalty was half of maximum, a taxing build would just pull in about 1/4 of its maximum income, which is 1750, and with A-Miner which has one of the higher tax bonuses from population, you would pull in 2100 credits per planet, and terran, which more people decide to choose, would pull in 1487.5 per planet. At this point, even though getting it to half of maximum is time consuming, and agriculture is almost as good as taxing, not quite though, especially considering the empire level you would have.

Now, let's compare everything 1/4 the maximum amount would be, this is what most new players would be at after a week or two of playing on realtime, a agriculture build with collective would pull in just 686 credits per planet, a tax one on the other hand would pull in a mere 487.5 income per planet before racial, A-Miner would get 585, and terran would get 414. At this point agriculture is obviously better, not even including the amount of food a taxing build would eat.

In conclusion agriculture has a more immediate bonus than taxing does, far more immediate, so it is a solid decision to go for that strategy if you are a newer player and don't have an amazingly large amount of time to sink into the game. Although your end game cash generation is poorer and your empire level takes a heavy blow, you will pull in better passive income than a tax strategy would do after moderate playing.

2.1 Taxing to Mining.

Now, I will compare Taxing to Mining. Mining isn't a passive income, it's what I consider to be an active one. As explained above, mining obviously has a better income generation than a taxing build PER TURN SPENT MINING, this means that although you do generate more income in the immediate future, the fact that you have to spend most of your time researching means that you can't spend time

mining as well! This makes it one of the hardest strategies to get maxed, since you have to 'waste' turns getting income, instead of taxing, which gets you income as long as you use a turn doing anything. That is near the end of the game though, for most of the game though, mining with even your minister, or technology half maxed, will earn so much more income than taxing that the extra turns you spend mining, won't have any real affect on you, since you only have to spend a very few getting income. And at the 1/4 mark, taxing can't even remotely come close to mining, at 1/4 mining will still pull in a 5720 income per planet per turn before racial bonuses, which alone is way higher than taxing can ever pull, but taxing on the other hand will only get about 487.5 income per planet before racials, what this means, is that mining will pull in about 12 times more income than tax at this point. So you don't need to spend many turns actually mining at all, only one in 12, to compete with taxing. Now, one might ask why would anyone pick a tax strategy over a mining one? Well as I mentioned earlier at end game, you would have to spend 1/5 turns mining to compare to taxing, and 100% of your planets that have mining have to be in the same system. This basically makes 33% of all turns you get wasted, compared to tax, and you also can't spread out your planets like a taxing strategy can. Not to mention that if everyone was a miner, none of their goods would sell, so mining would be useless!

In conclusion mining has a far more superior immediate income generation compared to taxing, which also makes it easy for all newer players or restarted planets to reach.

3. What races should you pick for your strategy?

3.1 For Mining

For mining, only 2 races really stand out, Terran and A-Miner. A-miner gets a racial bonus of +130% mineral generation, while Terran although it has -30%, that weakness is compensated for 500% terran metal generation. So not including the base planet mineral generation rate, a A-miner will get 0.16 minerals per mine, and 0.115 ore per mine. Terran, assuming that he makes his mining planet is a Terran metal one will get 0.29 minerals per planet, and another 0.035 ore per planet. That basically works out to 613.5 credits per planet for A-Miner, and 447.5 for Terran (Terran metal will most likely sell for 999 each, as opposed to a random metal that A-miner would get, although A-miner could go Terran metal as well, bringing its income up to 677). So A-Miner is clearly better, it isn't better by as much of a margin - before technology and minister.

Im not 100% sure but I don't think the +500% Terran metal generation for Terrans is taken into account after minister and tech, so the +500% bonus that it gives you will help you less and less as your infrastructure and ministers level up higher.

In conclusion if you are going pure miner, and planning on staying that way, A-Miner is better, Terran though is good if you want to just mine at start then switch afterwards, I will explain starting strategies later.

3.2 For Agriculture.

For Agriculture, the main choices are between Collective, and Terran (If you have a paid account, Marauder can only really go farming, it sucks at everything else, and Viral is pretty good at farming too, although it is usually worthwhile to go taxing for that race, since taxing is better after you get your tech up, but farming is a good intermediate income generator).

Collective is obviously the best at farming with a strong 100% increase to agriculture, no other race really comes close, and since collective is pretty bad at taxing, farming is sort of a must. Since it is the best farming race it would be a solid choice, especially if you plan on staying farming forever.

Terran isn't bad at farming, the main reason one would pick it over Collective, is that the Collective ships decent, meanwhile terran has pretty much the best ship out there, mainly due to its p.Thor, which pretty much outranges everything, so gets the first shot with its fairly deadly damage. But Terran would definitely be the second choice, for the non paid accounts.

3.3 For Taxing

For taxing, A-Miner does pull in the most tax money out of everyone, but on the downside its ships are horrible, it only has a small handful of ships with any range at all, and those ships with range can barely even do damage! It does have a very nice starbase, M.Lakko, it isn't much on the damage side, but it has the range to get the first shot in a fight, and it has to hull to take on whatever lives after that shot. Another reason why A-Miner doesn't do too well, is because it is limited to 5 systems, a Terran is limited to 6, and if you max out those systems, you can get another 3 from from missions on top of that, then another from titan project on top of those other ones as well, making it fairly easy to get ten. What I would do personally is set it up so you get your 2 Orions first, then build another 4 dark systems on top of them, maxing the 6, then do the mission for the capital system, which is right after the one where some newb takes all your Terran metal, then get the capital on that, and put the titan on end, as it will take a while to get. The A-Miner on the other hand, has no real option but to put 4 darks and a eden on the very inside, making it have a fair bit lower defense then a Terran one would have, and the worse ship quality hurts a fair bit too. So in my opinion Terran is a stronger choice if you plan on fighting a lot, or having to defend what you have, A-Miner is good for just a passive, sit in DP type of strategy.

Collective might do well in taxing, you might say to yourself, since it does get double population. But even with the double population it still only gets a 40% tax penalty, which is pretty steep, but it does get more systems, but alas it doesn't get missions to compensate to add the extra ones like terran does.

If you have a paid account viral is a good solid choice, especially since you can reverse engineer ships, and essentially get your pick of the best ships available to use for yourself.

4. How should I start?

For all strategies it is always best to level up all planets you might end up using to x before you actually do your main strategy, since if you are under

100k planets total from all your systems combined, its dead easy to just explore what you need and level it up right away, since upgrading takes planets away which you can easily explore back.

4.1 Mining & Agriculture.

For mining and agriculture if you are just starting the game and planning on going one of those 2 routes, then its best just to make a new system, whether it be a rich one or a farm one, and just go from there. Mining you should only concentrate everything in one system, then make a bunch of dark planets ahead of it, and destroy the sol system you start out with when you can. For agriculture, what you should do, is make as many systems as you can, all with about the same amount of planets, and level all the planets up to x, building just farms on all of em, that will basically force anyone who attacks you to get only a very small amount of planets. You might want to make a eden planet in there, with just housing on it, so you can get a high enough empire level to research some of the better projects.

For mining, since you basically have two choices in what to spend your turns on, once your systems are growing healthily, either mining, or researching. Personally I would get your mining infrastructure research up to 35-40, then just spend your time mining, and leveling you your mining minister, since mining is all about earning credits, leveling up a minister is dead easy, if you spend your time mining. Also since you get a lot of credits, you want a really big, bad fleet right at your main planet, should also stack the fleet defensively, the stacking website posted on the game manual's strategy page is fairly well written you should check that out if you want to learn about stacking ships.

For agriculture, since gaining food is passive, you can spend all your time researching, with just spending what credits you earn on your minister, your minister will level fairly slowly compared to mining, but consistently, your farming tech will also increase rather consistently. Since you will probably have all your planets spread out (at least for when you dont have too many planets at first) you dont really need much of a military to protect yourself, as spreading it out basically makes you weak everywhere, and odds of it being in the right spot at the right time, and being more powerful then the attacking force, is rather small, so you can just ignore that basically.

4.2 Taxing

Starting out taxing from the very start without some substantial income donated by your lord, is pretty close to impossible to do effectively. Generally what people do, is go A-Miner first, and just earn credits after you got a decent tech base and mining minister setup. After you are getting a substantial amount of minerals and ore, just make your second minister a tax minister, and spend a week or two leveling his abilities up. After you do this, just restart as the race you want to choose, you don't technically have to restart if you want to choose A-Miner as your taxing race, but it does make things a lot easier, and is generally worth it in the long run, especially since you get your freebi infrastructure technology redistribution on a restart. Since you get to keep your ministers, all you have to do really is insulate your core worlds with darks, or spread the systems out so that you wont lose many at

once (spreading out is more difficult as getting all their loyalties to 5000 takes quite a while.

5. How the in-game market works.

The in game market is fairly tricky and hard to get a good idea of how everything works. There are a few things you can rest assured that won't change though. One is that all food and consumer goods on realtime will sell instantly, the food will sell because there is a limit in the game of how many credits you can have, so people need to spend them on something that won't likely reach the limit, and food is primarily the most easily exchangeable item, they aren't buying it because they need it (most of the time), but buying it because it's a type of currency, it's easy to get hold of, and easy to get rid of if they need more credits at some point. Minerals and ore is the same to a lesser extent, it's very easy to get hold of, but sometimes it can be rather irritating to get rid of, especially if the market crashes after you buy it, you can even lose money on that! But the reverse is also true, you can make a fair bit off of it too. If you watch the market and keep an eye out for sudden drops or increases in prices you can make a fair bit from just buying/reselling. The more credits you can put towards buying/reselling, the more credits you can make, as you will actually be able to significantly impact the market. Say there is 500,000,000 Terran minerals on at 500, and no one else has any one, you can just buy it all and resell it at 999, with a fair degree of certainty, however I like to undersell what I think other people might try to sell at, so I usually pick a number that is 15 or so lower than I think I will be able to get, as it's better to be safe and earn a little bit of profit, then wait 48 hours with nothing!

6. Questions or contact.

-Authors Note

I know a few of the numbers might be off by a bit, but I don't think there is any substantial variation. As since I was only playing for a few days so far, I wasn't able to test the high end numbers to as high of a degree as I would have liked. There are a few guides that describe what to do, but very few of them explain why, it just says it's better without any description. Hopefully this guide will clear those aspects up for you about the different strategies so you can figure out for yourself what you want to do. I didn't explain the vassal lord relationship much, as there are a few sites out there that cover that fairly well.

My email is jbnash@connect.carleton.ca, and AIM is NBK Kill4Free, although I don't log on too often, I will if we can set up a time.

My Empire is Justice, on the realtime server, total time played was 3 days, total time played for the current empire is 2 days. I know it wasn't too long, but I spent most of that time fooling around with the numbers and formulas, as I absolutely hate, in any game, of just randomly picking a strategy, as often enough, you find out near the end that what you did wasn't the best, or had some fatal flaw that you just didn't know about, so I prefer to

be completely briefed on any game I play, and I had to figure out most of this for myself, although I did have some help from various sites, none of them had as good of an explanation as I wanted, and weren't nearly as in depth as I wanted as well.