Tax erosion in commodity-money systems: Tommaso Campanella on causes and remedies

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1. Introduction.

Changes in the value of money determine distributional effects between the private and the public sector. This paper focuses on losses inflicted upon the government by fiscal revenues that do not keep pace with inflation. Well-known episodes of tax erosion in the twentieth century occurred during the German hyperinflation of the early 1920s and in Latin America in the 1970s, spurring a theoretical and applied literature that offered both diagnostics and policy recommendations[1]. These episodes occurred in the context of paper money. The question arises if something similar to a "Bresciani Turroni-Olivera-Tanzi-effect" might have occurred under commodity money. If so, would tax erosion have exactly the same characteristics, causes and remedies as in paper money systems?

More than three centuries earlier, the philosopher Tommaso Campanella (1568-1639) argued that the government budget in the Kingdom of Naples was deteriorating because of tax erosion, and suggested remedies in his *Advice on Raising Revenues in the Kingdom (Arbitrii sopra l'aumento delle entrate del Regno*)[2]. Taking Campanella as our guide, we study the fiscal and monetary systems of the Kingdom of Naples in this period, the mechanisms of inflation-induced tax erosion, and the remedies derivable from skilful exploitation of the rules of circulation of metallic money.

Campanella's remedy has been occasionally mentioned in the secondary literature[3], but no attempt has been made thus far to explain the logic of his analysis and recommendations, or to check them against the factual evolution of tax revenues and prices under the monetary and fiscal systems of his time. In this paper, we take up these tasks in the following way. In section 2, after a brief description of the Neapolitan fiscal system, we focus on the most important direct tax, the hearth tax, on which Campanella concentrated his attention. More precisely, we illustrate the structure of the tax and present data on its nominal and inflation-adjusted revenue between 1563

[1] Bresciani Turroni 1937 [1931]; Olivera 1967; Tanzi 1977.

[2] *Arbitrii* were recommendations that experts or intellectuals, called *arbitristas*, offered to governments on hot economic and political issues. On the Spanish tradition of *arbitrii,* see Baeck 1988; Rauschenbach and Windler 2016.

[3] Among others, see Treves 1930, p.100. Colapietra (1973, pp.15-16) mentions Campanella's remedy but, after dismissing it as "crude", does not inquire further into its meaning.

and 1605. Section 3 presents the monetary system and the regime of money creation. In section 4 we present Campanella's diagnosis of the diminution of the real yield of the hearth tax and the remedies that he suggested. We use a simple model to analyze the proposal. Section 5 discusses the distributional impact of his proposal, which we try to square with his other works, and, in particular, with his social philosophy. Section 6 concludes.

Before turning to our analysis, we owe the reader, and Campanella himself, at least a very short synthesis of his troubled life[4]. Tommaso Campanella (1568-1639), born in the village of Stilo in Calabria, joined the Dominicans as a teenager. A voracious reader with a prodigious memory, he was soon dissatisfied with traditional Aristotelian philosophy and came under the influence of Bernardino Telesio's empiricist approach. In 1592 he moved to Naples and later traveled to central and northern Italy in search of patronage and an academic appointment, establishing relationships with many leading intellectuals including Galileo. In the 1590s he ran into trouble with the Inquisition; arrested in Padova and illegally brought to Rome, he was tried for heresy, forced to abjure, and sent back to Calabria in 1598. There he organized a conspiracy to throw off Spanish rule and establish a proto-Communist republic[5]. Betrayed, Campanella was caught in 1599 and brought to Naples to be tortured and tried by an ecclesiastical court for conspiracy and for heresy. The former dragged on inconclusively thanks to his simulating madness; the latter resulted in a life sentence but the Spanish authorities in Naples refused to extradite him to Rome and kept him jailed until 1626. He was then taken to Rome where, under the protection of Pope Urban VIII, he defended his writings and progressively gained his freedom. When another conspiracy in Naples appeared to implicate him, he sought the French ambassador's protection and moved to Paris in 1633, where he died in 1639. Throughout his life he wrote incessantly and managed to smuggle some works for publication in Italy, Germany, or France.

2. The fiscal system and the hearth tax.

The public finances of the Kingdom of Naples were heavily conditioned by Spain's financial needs, particularly from the mid-sixteenth century onwards and, more dramatically, in the first half of the seventeenth. Here we offer a mere bird's eye view of the Kingdom's fiscal system in Campanella's time, before focusing on the single most important tax in the state budget[6].

[4] See Amabile (1882) for a richly documented, pioneering study of Campanella's life.

[5] A tradition of interpreters, though, has doubted the reality of the conspiracy. For a recent example see Perini 2007.

[6] Campanella's *Arbitrii* were delivered to the Secretary of the Kingdom in 1608, but according to an authoritative interpreter (Firpo 1940, p. 134; Id.1974) they probably incorporate a lost work of 1604, *On*

In Naples, as in other countries in early Modern Europe, there were two main categories of taxes: direct and indirect.

Direct taxes were computed as a lump-sum per household or hearth. Most important among them was the *focatico* (from *fuoco*, hearth), the tax that we discuss in detail below. It was also called *pagamenti di fiscali ordinari* to distinguish it from other direct taxes that were also assessed by hearths and were assigned for specific purposes, such as for the pay of the Spanish infantry (the so-called "grana 48"), the construction and maintenance of coastal watchtowers, the repression of banditry, etc[7]. Extraordinary levies in theory, these additional direct taxes almost invariably became permanent. Both the *focatico* and the other direct taxes were fixed in nominal terms per hearth and, although their rates could vary over time, they infrequently did. One further, sizeable direct tax was the *donativo*, an aid to the Vice-regal Court voted by the Parliament. Normally, it fell on the barons for one third, and on the remaining provincial taxpayers for two thirds (the capital city was exempt). The allocation between the provinces was based on hearths. The *donativo* was voted irregularly in the first decades of the Spanish domination, but became regular and fixed in total nominal value, from 1566 onwards. In addition, the Kingdom also paid extraordinary *donativi* for special events such as marriages or births in the Royal family, or, again, as contributions to Spain's military campaigns in the Kingdom and elsewhere. Smaller *donativi* were sometimes paid to the Viceroys, the Queen, and others. The total direct fiscal burden was D4.05 per hearth per year in 1569 (see the next section for the definition of a ducat).[8]

Indirect taxes hit consumption and other economic activities, and were normally calculated as a fixed sum per quantity consumed or transacted. They included taxes on imports, exports, and consumption goods, and their collection was usually farmed out to private individuals. In addition to direct and indirect taxes, there were revenues from other sources, such as sales of lands, sales of offices, the sheep customhouse in Foggia, feudal duties, etc.

As we said, Campanella focused on the base direct tax, the *focatic*o. This tax was the core of the fiscal system, by far the largest source of revenue in the Kingdom.

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governing the Kingdom of Naples (*De Regimine regni Neapolitani*). This fixes the end-point of our story in the first decade of the seventeenth century, with the roots of the events extending back into the last decades of the sixteenth. Hence we do not deal with earlier and later developments in the fiscal system. For detailed studies of the Neapolitan fiscal system see, among others, Bulgarelli (1993; 2012 a,b), Calabria (1991), Galanti (1794), Galasso (1959), Mantelli (1981), Muto (1980 a,b).

[7] For the distinction between the *focatico* as an ordinary tax and other direct taxes see e.g. ASN, Sommaria, Dip. Serie I, Stato del Patrimonio, 1569, fl.212v (olim 183v).

[8] Archivio di Stato di Napoli (from now on, ASN), Sommaria, Dip., I Serie, 25, fl.1r.

The hearth tax fell on the twelve provinces, excluding the city of Naples and some nearby villages, called *casali*, that were exempt[9]. The competent fiscal court (the *Camera della Sommaria*) established the amount due by each province based on the number of households, and then communal administrations (*università*) allocated the tax among the households. The tax rate used in the calculations of the fiscal court was not uniform across the provinces. Each household was charged D1.51 per year in ten of the provinces, and D1.52 in the remaining two (Abruzzo Citra and Abruzzo Ultra). There were exemptions and tax rebates: a small number of communes paid the hearth tax according to special conventions; some households, categories of people or entire communes were temporarily or permanently exempt by virtue of special "privileges" gained through services offered to Kings or for other reasons[10]. Finally, scattered here and there in the Kingdom lived three tiny ethnic minorities (Albanians, Greeks and Slavonians) that, taken together, only contributed a trifling amount to the tax yield (between D4,000 and 6,000).

The tax base, that is the number of hearths, was ascertained through censuses (*numerationi*). These were supposed to take place every fifteen years according to the rule established by King Ferdinand the Catholic on his arrival in Naples at the beginning of the sixteenth century (the periodicity was every three years in the previous Aragonese period).-In practice, however, the intervals were much longer, particularly from the second half of the sixteenth century until the end of the Spanish domination in 1707. In this period, there were only four censuses: in 1561, 1595, 1648, 1669, with a qualification for 1648 (see below). Sometimes the census operations were cancelled because of their high costs for both the government and the communal administrations. In 1575, for instance, the communes offered to pay one million ducats in two years to escape the increasing tax burden expected from population growth[11]. The

[9] *Casali* were communities without walls and without collective properties. Unlike proper communal administrations (*università*) they did not have administrative powers. *Terre* (lands), mentioned below, were a general definition covering areas of various size, in which the provinces were subdivided. See e.g. Biblioteca Nacional de España (from now on, BNE) Ms. 2659, fl. 16r.

[10] For instance the land of Accumuli in Abruzzo Ultra had 768 hearths and according to its tax rate of D1.52 should have paid D 1,167.1.16 but in fact it paid only D440 with a loss to the public Treasury of D 727.1.16 (ASN, Sommaria, Dip. Serie I, Fascio 25, Stato del Patrimonio del Regno di Napoli, 1569, fl.7r). For a complete list of lands exempt in 1568-70, province by province, see BNE, Ms.10292, fls. 5r-8r, and for lands paying by convention ibid., fls. 8v-12r. For exemptions granted to private individuals, Ibid., fls. 12v-13v. In that period, total deductions amounted to D71,715.3.14, of which: for lands exempt in perpetuity: D41,306; for lands paying by convention: D24,040; for lands temporarily exempt: D3,610; for exempt individuals: D.2,758 (Ibid, fl 78).

[11] Faraglia 1876, pp. 223, 227; Fenicia 2003, pp.209-216. Many historians have noticed that the number of hearths increased in the sixteenth century until 1595, but decreased thereafter (e.g. Calabria 1991,

communes also wanted to avoid the cost of the census, that fell on them to a large extent. On its part, the government was happy to get the money straight away, rather than after census operations that were always long and complicated. We know, for example, that by the end of April 1602 the counting of households begun in 1595 was still incomplete[12]. For these reasons, delaying or cancelling the census became a common practice also in the following decades[13].

Because the tax rate was constant, one may expect the yearly revenue from the *focatico* to remain constant between censuses. However, as the data in Table 1 show, there were minor variations. These may be explained by a variety of reasons, such as the introduction or end of temporary tax rebates; the payment of arrears by indebted communities[14]; arbitrary inter-census adjustments for real or assumed demographic changes, usually at the instance of the communal administrations, which often asked for downward revisions in the number of hearths[15]; tax avoidance and tax evasion, as people joined the ranks of exempt categories (the military, the clergy), or moved their residence to escape fiscal control, or entered the ranks of banditry. Finally, yearly revenues may differ because in some documents, but not in all, they are recorded as averages over three years[16].

How was the yearly tax revenue calculated? Manuscript sources report the careful, if somewhat cumbersome accounting procedure. Typically, the officials of the fiscal court proceeded as follows. For each province, they multiplied the number of enumerated households by the appropriate tax rate (D. 1.51 or 1.52), then added the tax revenue from ethnic minorities and subtracted the deductions (exemptions, tax rebates, payments "by convention", etc). Finally, they added up the results for the twelve provinces to get what in this paper we call the net yearly

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p.64). According to the census of 1561 there were 481,544 hearths in the Kingdom, excluding Naples (ASN, Sommaria, Dip. Serie I, Fascio 25, Stato del Patrimonio del Regno di Napoli, 1569, fl. 3v).

[12] BNE, Ms. 2659 f.76r.

[13] In 1611, the authorities postponed the census for fifteen years in exchange for a tax of D.1,200,000 to be paid in four years. Then, in 1613, the suspension was prolonged for seven more years; and then the deadline was pushed further forward to 1649. When this deadline arrived, there was in fact no new census, only a largely arbitrary modification of the results of 1595. Bianchini 1859, p.205; Mantelli 1981, p.218.

[14] E.g. Sommaria, Dip. Serie I, Fascio 25, Stato del Patrimonio del Regno di Napoli, 1569, fls. 196r-v-197r; 199v.

[15] One such downward revision occurred in 1576 (Faraglia 1867, p.226) and another one in 1611 (Bulgarelli 2009, pp.77-8).

[16] BNE, Ms. 10292, unnumbered fl., letter by Camera della Sommaria dated 1571. See also Mantelli, 1981, p.217.

revenue. The corresponding gross revenue did not allow for tax rebates and other exemptions. Therefore it is not a proper measure of the tax intake[17].

Once the amount of the revenue had been ascertained and allocated between the municipalities, the actual process of tax collection began. Communal administrations were due to pay in three instalments per year, although in practice payments could lag by up to three years.[18] We note in passing that only a small part of the sums collected reached the general Treasury in Naples, because a large share of the revenue remained in the provinces, either "assigned" *in loco* to pay interest on debt or used to finance military expenditures, the construction and maintenance of roads, etc[19]. Also, a fraction of the revenue covered the tax collection costs[20]. A modern observer calculates that only two-fifths of the expenses were handled directly by the General Treasury in Naples[21].

To sum up, the following information emerges from the analysis thus far. First, the tax rate was fixed in currency units. Second, the tax base did not rise with inflation because it depended on a slowly moving variable, namely population, which was moreover infrequently measured. Third, the tax revenue, though relatively stable, was subject to minor year-to-year variations. Fourth, payment by instalments opened the potential for tax erosion in inflationary years.

Table 1 presents the revenue from the hearth tax for available years between 1563 and 1605. The first three lines show the nominal values of gross revenues for the *focatico*, the “grana 48”, and the other taxes assessed by hearth (we have not included the *donativi*, which were fixed at D1.2m every two years from 1566). We observe the stability (although with very minor oscillations) of the sums collected between the censuses of 1561 and 1595. Subsequently, nominal revenue rose from 1599 onwards, particularly in 1602 and 1604-5, when full information from the census of 1595 eventually became available.

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[17] Bulgarelli (2012, p.80) makes an analogous distinction between "gross hearths" (*fuochi lordi*) and the actual tax base net of exemptions. Calabria (1991, Appendix 1, Tab.1) only reports what we call gross revenues.

[18] In 1627, only 60% of what was due in that year was received, and only 30% of the arrears from 1625 and 1626 were collected (ASN, Sommaria Dipendenze I. ser, 25/4). See also Muto (1980b, 126) and Mantelli (1981, 222-3), who mentions intentional delays on the part of tax collectors.

[19] Calabria (1991 45) says that only two-fifths of the expenses were handled directly by the General Treasury in Naples.

[20] For instance, in 1569 the heads of the provincial tax offices all over the Kingdom received D.3,650 for the fixed component of their salaries, plus D.1800 in percent of tax revenues, that is 2% in two provinces (Principato Citra and Abuzzo ultra), and 1.5% in all the others.

[21] Calabria (1991, 45).

The next lines account for deductions when the sources provide them; they oscillated in value probably due to the causes indicated above, but within narrow bounds. The rest of the table show net revenues: first nominal, then inflation-adjusted. Over thirty years, the loss in real revenues is about 15-20%, depending on which starting year and which total one considers. This substantiates Campanella's concern with tax erosion.

If tax erosion was the starting point of Campanella's analysis, his next step consisted in determining its causes and, on this basis, the reasons why the cost fell on the government. To introduce his diagnosis, we need to look at the dynamics of prices, the monetary system of the Kingdom, the regime of money creation, and the possible causes of inflation at the time when Campanella studied the subject. To deal with these issues, in the next section we rely on our previous study (Costabile and Velde, 2020), where we produced detailed qualitative and quantitative information on the monetary system of the Kingdom of Naples from 1536 to 1623.

3. Money and inflation.

As in other European countries and Italian states, prices in the Kingdom rose throughout the sixteenth century, particularly from the thirties onwards. Part of the rise was due to the depreciation (in terms of goods) of the silver arriving from America. In the Kingdom of Naples bursts of inflation were strongly associated with its direct involvement in the Spanish wars, and the consequent increase in silver inflows and mint production. This was the case in the fifties, in connection with the war against the Pope, and in the seventies when Naples served as a spending center for the Mediterranean wars against the Ottomans. Prices stagnated thereafter for about a decade. Another big spurt of inflation occurred in the first half of the nineties. After a new brake in the last years of the decade, inflation resumed from 1600 until 1608, the period when Campanella wrote his *Arbitrii* and had them delivered to the authorities.

The Kingdom's monetary system was based on silver, in two ways. First, the currency unit was the silver carlino[22], a coin of Angevin origins. In our period, the carlino contained about 2.9 grams of silver (92.9% fine), the daily wage of a mason in the 1560s was between 1 and 2c. The silver ducat was also both a coin and a unit of account, and was exactly 10 carlini; it was the monthly wage of a washing woman in 1569 (Coniglio 1952, 28). Second, silver coins were the main means of payments and constituted the bulk of the money supply. Copper coins were minted occasionally, in very small denominations and in small quantities, and used in petty commerce. Gold coins mainly served for international transactions, and gold was not minted in large volumes.

[22] The tax rate of the *focatico*, that we quote in ducats in this paper, was in fact fixed in carlini.

The regime of money creation changed during our period. Until the end of the seventies, the mint operated under a regime of "free minting", meaning that private agents were free to have any quantity of money minted for them. They would bring silver to the mint and have it minted whenever coins were more valuable (in terms of commodities) than uncoined bullion. Vice versa, when the purchasing power of money tended to fall below that of uncoined bullion, they would melt the coins and either spend the retrieved metal domestically, or sell it abroad. In short, the quantity of money was endogenous. In practice, the relative convenience of minting and melting depended on the following parameters: first, the price of bullion in terms of commodities, determined in international markets and, hence, independent from domestic monetary policy; second, two policy variables, namely the mint equivalent (number of currency units minted from a given weight of silver) and the mint price (number of currency units paid by the mint to those who delivered the silver). The difference, if any, between the mint equivalent and the mint price was gross seignorage (the Court's profit plus the costs of minting). Thus, monetary policy under free minting influenced the money supply only indirectly, that is by changing the incentives, i.e the mint price and the mint equivalent[23]. For instance, the authorities may try and attract silver to the mint by raising the mint price. The mint price being the mint equivalent less seigniorage, this could be done by reducing seigniorage, but in Naples seigniorage just covered production costs. The only solution was then to raise the mint equivalent, which could be done either by raising the face value of coins or lowering their weight content.

The new minting regime inaugurated in the early eighties was different, in as much as coins were now minted at the authorities' explicit order and at their expenses. The new regime was a compelled choice- compelled by the sudden drying-up of private silver inflows at the end of the Mediterranean wars of the 1570s. Formally, the minting regulations were not changed: large coins remained available, but the mint price was not raised nor was the silver content of large coins reduced, a solution that they rejected, probably in order to maintain the international reputation of the domestic currency. With no private silver flowing into the mint, the government, still in need of cash, reduced the weight content of the half-carlino to help pay the suppliers of silver a higher mint price, and also to pay for the minting costs. The higher mint price was not available to all, but only to foreign merchants with whom contracts were made. In effect, the only minting that took place was on government account and in small coins, and the money supply became an exogenous variable.

This course of action did not produce inflationary effects in the 1580s, but its repetition in the next two decades led to a large increase in the money supply and a change in its composition in

[23] On commodity money systems under free minting see, among others, Sargent and Velde 2002.

favour of small, debased coins. Larger coins disappeared from circulation. Clipping, sweating[24] and counterfeiting made the monetary situation worse: the half-carlino, which now made up the bulk of the money supply, was very small (1.5g), poorly made with the technology of the time, and hence easy to clip.

Were the authorities aware that the type of coins they received in payment was not without consequences for the real value of the tax intake? They probably were. At any rate, in 1583-4 new regulations for the heads of provincial offices included the order to specify the type of coins they were sending monthly to the General Treasury in Naples[25].

This was the state of things in the first decade of the seventeenth century, also the first decade of Campanella's long stay in the jails of Naples, during which he wrote the *arbitrio* we now discuss.

4. Turning a loss into a gain. Campanella's diagnosis and remedies.

It is impossible to guess the extent to which Campanella was aware of the developments described above. Certainly, he was not ignorant of economic matters, both monetary and real, as we will see presently. But he had been languishing in jail since 1599. He had resisted torture in 1601, and struggled between life and death for six months thereafter, certainly unable to make economic research in this period, although he was active again soon after recovering[26]. Apart from that, it is not clear how much information would have leaked into the prison, and on their part the authorities probably did not spread the news about debasement. As a consequence, we are not in a position to tell whether it was out of ignorance or, perhaps, opportunism, that Campanella indicated the clipping and sweating of coins as the sole culprit of inflation, leaving the government's monetary policy out. He also ignored the other suspect, the falling price of silver in international markets.

Here is his diagnosis:

> "There is a great disorder in this Kingdom, because almost all coins are underweight, clipped with scissors, whence not little confusion and damage to the King follow, besides there are coins adulterated by alchemy, and full of tin, and artfully diminished: not clipped, but abraded in the surface, so as to leave the engravings but the money is underweight" [27].

[24] Sweating means shaking coins together in a bag to the purpose of removing some of the metal from the surface. The metal would then be collected and used by the counterfeiters (*monetarii*).

[25] Muto 1980b, p. 136.

[26] He probably wrote his *Aforismi Politici* at the end of 1601.

[27] Campanella 1973, *Arbitrio o discorso secondo*, p.102.

He immediately follows with his intent and his proposal:

> "From this harm I want to get a benefit. When the cities and lands of the kingdom pay the direct taxes (*pagamenti di fiscali*) they should pay by weight, and then the king should pay by tale what he owes; so, for example, if a city pays 100 ducats they should be received by weight, that is, 100 ounces of wrought silver[28]. But, as I am assured that each ducat is missing 1 carlino at least, the king will receive 10% more and spend it by tale, because the city will have to give 110 ducats. And since the king collects almost 2 million from this kingdom, he will gain at least 100,000 ducats per year, because not all coins is clipped and abraded."

Campanella adds some recommendations to monitor the treasurers and tax collectors to prevent them from under-reporting the increase in coins collected and from clipping themselves the full-weight coins they collect. The monitoring was to be entrusted to groups of monks. To avoid any prior collusion between the monitors and the treasurers, the names of the monks were to be chosen at each triannual payment term (*terze*), and, to avoid collusion between the monitors, the monks were to be chosen from rival orders (a Franciscan, a Dominican, and a Jesuit or monk of another order). Then, in typical scholastic fashion, he reviews two possible objections, which we will discuss later.

4.1 A Simple Model

To help analyze Campanella's proposal, we use a model adapted from Sargent (2019). The idea is to keep the model as simple as possible and capture the situation and Campanella's proposal. We won't claim that Campanella had thought through his proposal the way we do, but simple analytics will highlight under which circumstances the proposal made sense, and will also turn our attention toward interesting distributional questions.

Assume a closed economy and an exogenous endowment y: private consumption c and government consumption g add up to the endowment: $g + c = y$.

In the government's budget constraint, the spending side consists in purchases (g) and transfers (T), which include both transfers in the modern sense (such as pensions), but also interest payments; in other words, T is all payments that are not in exchange for goods. On the revenue side we only have taxes because this is a steady-state model, hence there is no new borrowing. In

[28] A ducat weighed 1.12 Neapolitan ounce (29.9g).

principle any of the variables in the budget constraint can be adjusted to maintain equality: we will assume that g adjusts. This is not unlike the way government budgets were drawn up in Naples: revenues were known (because they were fixed) or estimated on the basis of recent years, known payments for salaries, pensions, and debt service were deducted, and what remained was available to spend[29].

We write the budget constraint in nominal terms because we assume that taxes and transfers are constant in units of account. Government purchases g, in goods, is multiplied by the price level p, in units of account per good :

$$\tau = T + pg$$

where τ is the nominal value of the tax intake.

Money consists of identical coins containing b ounces of silver, and the unit of account is the coin: in the case of Naples, the carlino. By setting b the government chooses the monetary standard, that is, how many ounces of silver per unit of account. To give meaning to the notion that coins are made of silver, we specify the following: coins can be melted at no cost, their content exported and exchanged for real goods at the world market price φ (in ounces of silver per good), so that a unit of good purchased abroad requires melting φ / b coins. Conversely, the mint stands ready to convert silver into coin at a mint price $1/b$ (in coins per ounce of silver). That is, the mint does not charge seigniorage, and we ignore production costs.

These simple assumptions imply that, as long as coins are in circulation domestically, the price level is determined by the world price of silver φ and by the amount of silver b put in each new coin by the mint.

If the price (of money) is determined by world conditions (the price of silver), then the quantity (of money) is endogenous, and determined through the demand for money/quantity theory equation:

$$m = p(g+c).$$

There must be enough coinage to carry out the transactions, given prices.

Now suppose that we allow for some of the money stock to take the form of "tokens" or underweight coins, which number m_1. We use this device to capture the appearance of underweight coins after the 1580s. These tokens are part of the money stock in the sense that they are treated as identical to coins for purchases: they circulate by tale. The tokens in Sargent (2019) are intrinsically worthless, in our model they are only "partially" token: they contain some silver, but not as much as the (full-weight) coins: say, αb with $\alpha < 1$.

As long as the official coins are still in circulation the price level remains at b/φ and we have

$$m + m_1 = p(g+c).$$

[29] See the discussion in Calabria 1991, pp. 156-59.

The condition $m \geq 0$ or $m_1 \leq p(g+c)$ is a limit on how many tokens can be in circulation; once that limit is reached, the price level is no longer tied to b, and the "old standard" of value becomes irrelevant as far as the money stock is concerned. Now the silver content of the tokens provides a bound on the price level: if p reaches $\varphi/\alpha b > \varphi/b$ then the tokens are worth more as silver than as money and they are melted. If the price level were any higher, they would all be melted and no money would remain. But the price level could be anywhere between the "old" level φ/b and the new bound $\varphi/\alpha b$. The price level is inside an interval rather than a point as long as there is no mechanism to produce more coins and raise prices.

Such a mechanism will appear if we say how the tokens are produced. Suppose that tokens are produced by costlessly clipping official coins. Then, if the price level p were below $\varphi/\alpha b$, there would be an arbitrage: sell 1 unit of goods abroad for φ ounces of silver, bring it to the mint and get φ/b coins, turn them into $\varphi/\alpha b$ tokens and use them to buy $\varphi/\alpha bp > 1$ units of goods, which yields a riskless profit of $\varphi/\alpha bp - 1 > 0$. This will continue until (or more precisely, this happens unless) the nominal quantity of money has increased to $\varphi y/\alpha b$ and the price level to $p^*=\varphi/\alpha b$. In effect, the mint's willingness to mint coins and the limitless ability to clip are the equivalent of a debasement.[30]

In the previous paragraph we haven't been clear about clipping. What it really means is taking a whole coin containing b, turning it into a token, and selling the remaining silver $(1-\alpha)b$ for goods abroad. Allowing this to take place costlessly seems to open up the possibility of another arbitrage: any money holder could make a profit from turning a coin into a clipped coin and selling the clipping. Hence in equilibrium the money stock is turned into clipped tokens and we are in a new state with all coins containing αb ounces of silver and the price level has risen from $p=\varphi/b$ to $p^*=\varphi/\alpha b$.

Note, however, that the real money stock is the same: the nominal quantity of money and the price level have increased by the same amount. The total quantity of silver is unchanged. The two arbitrages described before work in opposite directions: the clipping arbitrage reduces coins and exports silver, but the price arbitrage exports goods and imports silver back. In the end the quantity of silver is unchanged, only nominal quantities have changed.

To be clear, an arbitrage is the possibility of unbounded, riskless profit: equilibrium is not compatible with unbounded profits, hence the conditions that give rise to arbitrage must be ruled out. The price arbitrage rules out $p \leq \varphi/\alpha b$, and the clipping arbitrage rules out $m > 0$. Intuitively, they help us understand how the new equilibrium is reached, but the theory is silent on which of the two arbitrages would play a role in moving from one equilibrium to the other.

[30] Strictly speaking the half-carlino, which was the coins most susceptible of clipping, was not produced on demand, but as we saw, the government issued it so frequently that it effectively became the new standard.

To summarize: allowing clipping to take place results in an increase in nominal quantities (the price level and the money stock) while leaving real quantities unchanged. We will refer to the equilibrium with full-weight coins only as the original equilibrium, and the equilibrium with clipped coins as the clipping equilibrium.

Note that allowing clipping is exactly the same as a debasement. Suppose that the mint changes the mint price to $1/\alpha b$, but that no distinction is made between old and new coins. Then old coins would all be melted and brought to the mint for recoinage. This is "Gresham's Law," whose operation requires the assumption that coins of different weight are taken as equivalent (by tale).

Now let's turn to the government budget constraint, rewritten as

$g = (\tau - T)/p$

Taxes and transfers are set in nominal terms, so if the price level changes purchases g have to adjust to maintain equality: the government spends on goods whatever is left of taxes after pensions and debt service have been met. Clearly g is decreasing in the price level p. In fact, in the clipping equilibrium all terms of the budget constraint: real taxes, real transfers, real government purchases decrease by a share $(1-\alpha)$ compared to the original equilibrium. But, since the endowment y is constant, private consumption goes up by the same amount as public consumption decreases. The private sector receives less in transfers, but gains even more in reduced taxes (because we assume that $\tau > T$). If taxpayers and transfer recipients are different individuals, then there is also redistribution from the latter to the former. We defer a more complete discussion of these distributional implications at the end of section 4.2.

So far we have assumed that coins can be clipped once. If we assume that this happens every period, then the price level and the nominal quantity of money grows exponentially at the rate $1/\alpha$, the real money stock remains constant, but all terms in the government's budget constraint shrink at the rate α. Of course, this need not be true if some taxes are in real terms, indexed, or more easily adjusted to inflation. Many indirect taxes were *ad valorem*, hence their revenues would grow with inflation; they were typically farmed out for fixed nominal amounts, but the leases expired every few years and the government could, and did, negotiate the farm price.

4.2 Campanella's Proposal

Campanella's proposal bore entirely on the government's budget constraint: take coins at weight for taxes and spend them by tale for all expenditures, both purchases and transfers, with the key difference that purchases are made at market prices. Circulation by weight means that coins are weighed before being accepted in payment for goods, services and, in our case, for fiscal

obligations. Circulation by tale means that they are accepted at their face value, irrespective of their metal content. Circulation by tale was normally the rule in the Kingdom of Naples[31].

Let's take the case of a one-time clipping with a value of $\alpha=0.9$ as he suggests, and let us distinguish two cases, when both coins coexist and when only clipped coins circulate.

In the first case, the price level is still φ/b, and both coins are taken by tale in purchases of goods, but by weight in payment of taxes. One good coin will buy the same amount of goods but will discharge a greater tax liability than one clipped coin, hence only good coins are used to pay taxes (assuming that there are enough; if not, then it will be profitable to melt enough clipped coins and have them recoined into good coins with which to pay taxes). The government collects only good coins and spends only good coins, so the proposal has no effect whatsoever.

Note that Campanella anticipated this result: one the two objections he discusses is that "this resource will disappear with time, as people will pay with unclipped coins and will find the counterfeiters to punish them, or else the king will have a recoinage". We will come back to the effect of a recoinage below.

Now assume that all coins have been clipped. Taking coins by weight in payment of taxes is equivalent to increasing taxes from τ to τ/α. The government spends them by tale, so transfers are still T. Purchases are whatever is left over, at market prices $p^*=\varphi/\alpha b$:

$$g^* = (\tau^* - T)/p^* = (\tau/\alpha - T)\,\alpha b/\varphi = (\tau - \alpha T)/p.$$

What has happened ? Relative to the clipping equilibrium taxes increase and transfers are unchanged. Government purchases goes from $(\alpha\tau - \alpha T)/p$ to $(\tau - \alpha T)/p$, which is higher than in the clipping equilibrium and in the original equilibrium. If there are no transfers, that is, no nominal obligations (all government purchases are at market prices) then Campanella's proposal completely restores the original equilibrium.

There was a post-scriptum. The messenger who took his *Arbitrii* to the palace had come back with the news that a different reform was already underway. This was Viceroy Benavende's reform of 1609, well known to scholars interested in the monetary history of the Kingdom of Naples[32]. According to the provisions of this reform, people must bring underweight coins to the mint, have them reminted in full weight coins, and suffer the loss from the missing silver. Thereafter, circulation must be by weight, with a new law establishing severe punishments for non compliance. Campanella was very critical of the Benavende reform, and explained the reasons in the continuation to his *Arbitrio*. First, the reform would not benefit the King as much as his own

[31] The edicts (*prammatiche*) of 1552 and 1562 (De monetis 3 and 5; Vario 1772, 2:513-15) required circulation by weight, but only for coins of 1 carlino and more.

[32] Don Juan Alonso Pimentel de Herrera y Quiñones, 5th Count of Benavende, was Viceroy of Naples from 6 Aprile 1603 to 11 July 1610.

proposal. Second, sweated coins were difficult to detect, implying an unjust penalty imposed on the public. Third, women, young people and peasants would even have problems in detecting clipping, because "they do not not know the letters and circles and numbers that are around the royal arms". Fourth, great inconvenience to the general public would result, because everybody would need to carry "little scales" [*bilancelle*] to weigh the coins, and again people ignorant of weights would be cheated. Fifth, acceptance by weight would not solve the problem of "alchemical coins", and consequently the gallows would be ready just for the simple people unable to guard themselves. Sixth, the new coins would be easier to clip. Finally, any advantage to the king would only come at the expense of innocent people, while the costs of Campanella's proposed reform would have fallen mostly on the culprits[33].

Campanella's objections were largely practical, and they turn out to be quite correct. The reform explicitly left out the smallest coins, most prone to clipping, which were allowed to circulate by tale, presumably because for such small coins it was impractical to enforce circulation by weight. For that reason the reform largely failed: the money stock continued to consist mainly of clipped coins, and the situation worsened until a major reform in 1622 eliminated the infamous clipped coins altogether[34].

It is interesting for our purposes to compare the distributional implications of the recoinage solution adopted by the Viceroy with those deriving from Campanella's plan. In the context of our model, there are two ways of carrying out a recoinage. One is to exchange coins by tale, one coin given for each underweight coin brought by the public to the mint, the other is by weight, α coins given for each underweight coin. In the former case the government needs a one-time tax in order to make up for the missing 1- α silver in each coin, in the latter case it doesn't. Either way, in this simple setting the original equilibrium is restored, with the price level returning to φ/b. The two methods cease to be equivalent if prices adjust slowly or if taxes are distortionary.

Recoinage has the same effect on taxes as Campanella's proposal, but transfers increase back to their original level, hence government purchases are less than under his proposal.

equilibrium:	taxes	transfers	governmen t purchases	price level
original, recoinage	τp	Tp	$(\tau-T)p$	$p=\varphi/b$
clipping	τ/p^*	T/p^*	$(\tau-T)/p^*$	$p^*=\varphi/\alpha b>p$
Campanella's proposal	$\tau/\alpha p^*$	T/p^*	$(\tau/\alpha -T)/p^*$	$p^*=\varphi/\alpha b$

[33] Campanella 1973, pp.104-5.

[34] Costabile and Neal 2018; Costabile and Velde 2020.

Summing up, as the table shows, the four equilibria have different distributional properties.

Compared to the original situation, clipping reduces the burden of taxes, but it reduces transfers even more. It also reduces government purchases.

Recoinage restores the original situation.

Campanella's solution does not do so. True, it does restore the tax burden to the original level, but it also introduces a momentous change: a rise in government purchases compared to both the original and the clipping equilibrium. Also notice that there is one feature of the clipping equilibrium that Campanella's equilibrium preserves, namely, the cut in transfers, which is instrumental to funding the increase in government purchases. Now remember his promise to turn a "harm" into a "benefit". The model enables us not just to confirm that the "harm" is tax erosion, that is the evil that his plan eliminates; but also to identify in the larger government purchases the "benefit" that he had promised.

How would Campanella's proposal have changed the composition of public expenditures in the Kingdom of Naples? In 1605 half of these expenditures was for servicing the public debt, with another 12% on pensions. Thus, his plan would unambiguously redistribute resources away from the class of transfer recipients, which we may call "rentiers" for short. Our result sits well with Campanella's attitude towards the barons and other nobles, who - together with foreign creditors - owned the bulk of the public debt and benefited from many pensions. In particular, it is in tune with his remark that their rents should not exceed D30,000, and the Treasury should confiscate any surplus[35].

But who would be the ultimate recipient of the benefit? That would depend on how the government would allocate its purchases. In the *Arbitrio* that we have been discussing so far (the 2nd *Arbitrio*) Campanella does not say anything about this allocation. Indeed, his response to the other objection anticipated by Campanella but which we haven't discussed yet, might suggest that he doesn't care.

The objection is this: "it might be objected that it is unfair to exact by weight and pay by tale, and that the people, who are blameless, should not be punished, except for a few guilty scoundrels". In response Campanella uses several arguments. First, the punishment (which he doesn't deny) creates an incentive for the people to discover the counterfeiters. Second, the evil comes not from the king, who mints justly (as we have seen, this is arguable but Campanella may not have been aware of the debasement of the half-carlino) but from the people, and they should be punished. The guilty and the innocent are punished together, but Scripture provides other examples. Finally, as precedent he invokes a similar procedure used by the papal treasury in Rome.

The arguments seem a little blithe, especially compared to the detailed concern for the poor and the uneducated that he displays in his objections to the Benavende reform. Is the main purpose of the 2nd *Arbitrio* merely to ingratiate himself with the authorities (and help secure his release) by

[35] Campanella 1997, p.120.

offering a ruthless expedient for raising revenue, with little thought for who would pay? We do not think so, because his solution for tax erosion is in full agreement with his social and economic philosophy.

To see this, we have to inspect at least some of his many other works in order to clarify the issue. Fortunately, we do not need to go very far to begin answering our question, because in another of the three *Arbitrii* delivered to the Viceroy in 1608 (the first one) he proposed an important plan of public expenditure, which contributes to illustrate Campanella's distributional preferences and the underlying social and political philosophy.

5. Lambs and wolves: the distributional consequences of the proposal

Campanella's work is complex and it often helps to see him as operating on two levels, utopian and practical or theoretical and applied[36]. But the overarching vision is based on the ideals of a unifying political order, and of the society as an harmonious whole, or, as has also been put, of the polity as a living organism[37]. Inequality constitutes a dangerous threat to social harmony because, as we shall see, it destroys the bonds of societies. Thus, as we shall also see, the principle of equality that permeates much of Campanellas's thought derives not less from his ideal of a united society than from his concern for the well-being of individuals. Indeed, there is no dualism between these two principles, unity and equality, which are natural complements within his vision: much of the community's institutions in his ideal society are intended to make *all* individuals achieve their fullest potential in ways that also benefit the community as a whole and preserve its harmony. Writing a hundred years before Mandeville's fable of the bees, Campanella sees a tension between private motives and the public good, and he ascribes to mercantile activity a marginal role at best in his ideal community.

At the applied level, Campanella articulated his vision of inequality in the 1st *Arbitrio*, that we now discuss. This discourse was devoted to the issue of famines, a problem acutely felt in the Kingdom of Naples from the end of the sixteenth century onwards. In Campanella's view, responsibility for lack of food did not rest with natural scarcities: God in fact harmonises the crops with the population's numbers and needs. Instead, responsibility rested with the commercial devices (*arte negotiatioria*) of speculators[38], who hid the wheat in view of larger profits from rising prices. They kept the wheat for years to create an artificial scarcity and then sold it, rotten and

[36] See, respectively, Perini 2007 and Costabile 2015.

[37] Ernst 2010, p. 61.

[38] Speculation on grains was a well-known phenomenon in the Kingdom. Contemporary writers were aware of the problem and a literature flourished on this theme.

poisonous, mixed-up with the new crop. The consequences were depopulation, a shrinking tax base and dwindling technical know-how in agriculture, as people died, renounced marriage and stopped having children to avoid passing on their miseries to them; or resorted to banditry, and even fled the country in search of better conditions of life elsewhere. The "common good" declined. As a remedy he proposed a national plan of wheat purchases and stockpiling at political prices, intended to guarantee the subsistence of poor consumers and to protect the interests of poor peasants against the big producers and the greedy merchants[39]. Enacting this plan would be the responsibility of the King as the "father of the republic". It would imply government purchases of wheat directly from producers, or from the ships in case it arrived by the sea. The government would then re-sell the wheat to the communes, at a very small profit for the treasury, and the communities in turn would stock it in communal warehouses and distribute it to needy people, with a further mark-up of the same minuscule size. The plan also included a system of redistribution of the cereal from the rich provinces to those hit by scarcity and famine. As a consequence of the resulting sharp reduction in price and abundance of wheat "the population, the peace, the goodness rise, the robbery, the frauds, the stealing and the other troubles described above cease"[40]. In answering his critics, who objected to his plan on distributional or efficiency grounds, Campanella pointed to the King's duty, as the peoples' shepherd, to defend the "lambs" against the "wolves" on the one hand; on the other, he noticed the productivity-enhancing effects of his plan on small farmers, once freed from the grip of speculation[41].

This short summary provides us with a first answer to the question raised in the previous section about the destination of the additional public purchases made possible by Campanella's monetary plan. The answer is a welfare program that redistributes resources to the poor by nationalising the distribution of food[42]. As our analysis has shown, this course of action is recommended because commercial activity hurts the "lambs", impairing their rights to family and reproduction, and also perturbs the economic order, destroys the foundations of national wealth, and damages the fiscal system.

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[39] Campanella 1973, pp. 86-7.

[40] Ibid. p. 87.

[41] For the metaphor of the king as a shepherd that "defends and nurtures his people as himself" see Campanella 1989, p. 35 and ibid., p.36: the King "almost as a shepherd defends his lambs with arms and laws, and with his example and wisdom, and guides them in the calm beautiful fields of peace, among the fields of the abundance of virtues and in the perpetual pastures, and nurtures them, and with loving thoughts observes them (...)."

[42] In part this is an implementation of the 6th recommendation of ch. 16 of *La monarchia di Spagna* (nationalize wholesale trade).

Would all additional expenditures go to welfare expenditures? Probably not. The harmonious polity that Campanella envisions has a broader purpose, and redistribution would not be the only object of fiscal policy. This purpose emerges from Campanella's other writings, in particular from a work titled *Monarchia di Spagna*, a first draft produced between 1593 and 1595, an enlarged version probably written around 1598, and various translations printed from 1620 on.[43] In the *Monarchy*, the ideal of a unified political order, a constant in Campanella's thought, takes the shape of the search for a nation that would be able to realize the universalistic program in the actual circumstances of the time. The main purpose is to explain both why the Spanish monarchy should and how it can become universal, based both on *a priori* reasoning and on a careful reading of history and of the rise and fall of empires and rulers. Campanella interprets this history through a model enunciated in the first sentence: "Three common causes come together in the conquest and maintenance of every great power – namely, God, prudence, and opportunity – which, united together, one calls fate, which is the coinciding of all the causes acting by virtue of the first." Divine intent, human planning, and pure chance, in varying proportions, account for the succession of empires from East to West, with Spain now in a position to establish a universal monarchy if it plays its hand well.

The universal monarchy is glued together by religion, because the common faith in, and love of, God binds the spirits of human beings together. Campanella's religion is Roman Catholicism, and he often reiterates that Catholic means universal. This implies that the king must make war on the enemies of the faith, be they the Turks or the Lutheran heretics. In this context, he devotes many pages to the organization and financing of armies. In the *Philosophia Realis*,[44] he explains that ideology ("lingua") conquers, force ("gladium") defends, and money ("pecunia") maintains. Therefore fiscal resources are not a necessary condition for conquest (Caesar conquered without money, Christianity without soldiers) but they are for longevity. The ruler must engage in tax smoothing à la Barro (1979): build up a war-chest as insurance against bad shocks (such as the loss of the Treasure fleet from the New World), but also to avoid taxation in the worst times, just when he needs the resources and the love of his subjects. The saving rate he prescribes is increasing in revenues. He should also avoid foreign debt because foreign debtors will take advantage of him or abandon him at the worst times. "Spending like a miser and only under duress will make you rich and loved by your people". Thus, Campanella would probably have allocated some part of the

[43] See Ernst 1989 and Ernst 1997 respectively. Also relevant are the *Aforismi politici*, and the fourth part of the *Philosophia Realis* (published in Paris in 1637 under the author's supervision). These two works are dealt with in the text below.

[44] *Politica in Aphorismos Digesta* in Campanella (1637), an extended version of the *Aforismi politici* (Ernst 2010, 89).

increased public expenditures to the maintenance of the army and the build-up of precautionary treasure.

Campanella, who frequently attacked the cynicism of Machiavelli, has been taxed of hypocrisy because he did seem at times willing to use opportunistic, if not cynical methods. One might view the *Arbitrii* merely as an attempt to curry favour with his jailors, but we do not. Our discussion shows how his political realism and pragmatic insights are in full coherence with his political ideals. At the time of the *Arbitrii*, he was willing to assist the Spanish state because that political entity seemed to him, at the time, best positioned to bring about a universal monarchy. He had concluded in his *Discorsi ai Principi d'Italia* (sketched in 1593 or 1594) that Italy could no longer aspire to rule the world as Rome once did. Later, in the 1630s, he would presciently conclude that Spain's time had passed as well, and pin his hopes on France. Campanella's political considerations, based as they are on a deep knowledge of contemporary events and of power relationships, when taken in conjunction with the *Arbitrii* illustrated above, confirm the strengths of his thought as an applied thinker.

It is in his theoretical work, however, that his vision of a harmonious society and the notion of equality as its foundation emerge fully. Campanella establishes a hierarchy between social models, based on their adherence to the principle of the common good, that he contrasts with private good. Societies that privilege the former principle he defines as "natural", those that privilege the latter as "violent": "dominion and community is more natural where the good is more common to all; that dominion is more violent where such commonality is absent"[45]. The combination of public wealth and private poverty makes republics flourish, as shown by the example of ancient Rome. Campanella also condemns inequality for its disagreeable consequences on the personalities of human being: it induces envy, fraud and theft among the poor, arrogance and sloth in the rich. This anthropological duality weakens the bonds of society and must be curbed. A more egalitarian society would also produce better personalities.

In *La città del sole*, Campanella applies his egalitarian stance to the design of his ideal society. From the economic point of view, he lays emphasis on the organization of production, education, learning, cultural and scientific progress, and the administrative machinery, and articulates his approach along the multiple dimensions of class, gender, and inter-generational equality. Equality of opportunity is a basic feature of his project. He does not mean to eliminate natural propensities or abilities (he knows that abilities differ among individuals) but he wants to provide equal opportunities by means of equal education for all, including for boys and girls, men and women[46]. In production activities and in public offices, the allocation of jobs should be based

[45] Campanella 1941a, p.90, as translated in Ernst 2010, p.90.

[46] Campanella 1941b, pp.64-5.

on merit and talents, rather than inheritance or the sale of offices[47], and every job should have equal dignity. The name of inventors would be written in the book of heroes, but they would not receive special benefits. In the hierarchy of political power, the wisest people would prevail, even women or young people if they are wiser than old men[48]. And all individuals would have equal political rights. In this context, he conceived of the ruler as a philosopher-king promoting progress through equality of opportunities and the application of science to production[49].

6. Conclusions: two weights and two measures

As reported by Campanella and confirmed by our data, the revenue from the hearth tax did not keep pace with inflation. The reasons were a tax rate fixed in terms of the monetary unit, a tax base inelastic to price changes, and legal collection lags. Because the other two elements were not adjustable, he proposed to change the tax rate, tying it not to the nominal value of the monetary unit, but to its official silver content. Under this scheme, as the price of goods in terms of coins rose, so would the nominal tax rate, so as to keep the real revenue constant. This indexing system is the same as that proposed by the German Democratic party in their stabilization plan more than three centuries later, in 1921. According to this plan: "the rates of the taxes should be fixed in gold, and they should be actually paid in paper marks, according to an index proportioned to the internal purchasing power of the mark."[50] Campanella, however, also proposes that money *not* be indexed when the government makes purchases. Our model allowed us to analyze the implications of the proposal on government revenues and purchases and on the price level. Specifically, we show that his plan implies a redistribution away from "rentiers", namely the perceptors of state rents and pensions, that in the circumstances of the Kingdom largely identified with the rich, unproductive, lazy barons. A broader reading of his work, both philosophical and political, enabled us to hypothesize how he might have seen these implications in relation to his egalitarian ideals and his goal of a united, harmonious society.

We also reconciled the apparent inequity of “two weights, two measures” with his views on inequality. This reconciliation is hypothetical, but important clues suggest that, at a minimum, Campanella was aware of the tension inherent in his proposal, and perhaps satisfied with it. The clues are in the epigraphs he purposefully chose for the 2nd *Arbitrio*.

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[47] Campanella 1941a, p.99.

[48] Campanella 1941a, p.98. Campanella's utopia is thus very different from the (almost contemporary) very inegalitarian utopia of Francis Bacon's *New Atlantis*, probably written in 1623.

[49] Campanella 1941b, p.97.

[50] Bresciani Turroni 1937, p.59.

The first is (only part) of Proverbs 11:1: “[statera dolosa abominatio apud Dominum et] pondus aequum voluntas eius,” [a deceitful balance is an abomination before the lord, and] a just weight is his will.[51] The second is another verse, Proverbs 20:8 “rex sedens in solio iudicii dissipat omne malum intuitu suo,” the king, that sitteth on the throne of judgment, scattereth away all evil with his look. The third is (only part) of Romans 12:21: “[noli vinci a malo sed] vince in bono malum,” [Be not overcome by evil: but] overcome evil by good.

All three epigraphs are unsettling. The first seems apposite enough until one asks which of the two modes of payment (by weight or by tale) is the “just weight.” The second probably refers to the monitoring of treasurers and tax collectors. But, interestingly, that verse in the Bible is closely followed by: “diverse weights and diverse measures, both are abominable before God” (Proverbs 20:10). But isn’t his proposal a perfect example of “diverse weights and diverse measures”? And, speaking of abominations, isn’t receiving by weight by paying by tale just like using a deceitful balance, as in the omitted part of Proverbs 11:1? Is his proposal a means to overcome evil by good, as in the third epigraph, or instead is it good intentions overcome by evil means, as in the omitted part of Romans 12:21?

Our view is that Campanella was not playing games by truncating verses that his readers knew by heart, but pointing out difficulties that he did not explicitly resolve. As more distant readers, we have tried to elucidate the inner logic of his proposal and follow the clues he left.

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Table 1

	1563	1568 /70	1569	1572	1574	1579	1583	1585	1585 /86	1591 /92	1599	1600	1602	1605
gross revenues														
focatico	710,496	732,615	732,210	732,615	734,294	734,328	734,902	735,018	734,853		767,033	818,140	806,639	796,442
gr 48	224,913				232,545	232,513	229,417	229,417	229,817			259,832		252,934
other	125,739	135,685			141,734		152,045	151,000	151,000		174,415	182,333		191,483
total gross	1,061,148				1,108,573		1,116,364	1,115,435	1,115,670			1,260,305		1,240,859
deductions														
focatico	64,567	71,716	73,117		70,696	70,696		69,118	67,592	70,000	68,095	81,327	76,216	
gr 48	9,671				9,854	13,396		13,246				7,548		
other												1,125		
net revenues														
focatico	*645,929*	*660,899*	*659,093*		*663,598*	*663,530*		*665,900*	*667,261*		*698,938*	*736,813*	*730,423*	
gr 48	*215,242*	217,705	217,596	217,705	*221,276*	219,117		*216,171*	216,571	216,442	232,502	*252,284*	248,389	
subtotal 1	*871,171*	*878,604*	*876,689*		*886,289*	*882,749*		*882,071*	*883,832*		*931,440*	*989,097*	*978,812*	
roads			41,805											
towers			25,438											
banditry			12,360											
billeting			56,081											
subtotal 2	*125,739*		135,685									*181,208*		
total net	*996,910*		*1,012,374*									*1,170,305*		
real revenues														
total gross	*1,061,148*				*977,724*		*862,746*	*869,316*	*867,116*			*880,435*		*844,843*
subtotal 1	*861,171*	*848,573*	*846,724*		*781,677*	*715,179*		*687,443*	*686,928*		*651,372*	*690,972*	*679,283*	
total net	*996,910*		*977,771*									*817,562*		

Numbers in Roman fonts are in the sources. Numbers in italics are computed.

Sources and notes:

1563: Calabria (1991, App. 1 Tab. 2) and Coniglio (1987, 280-84) for a break-down of total deductions. Coniglio (1987, 299-301) has the same numbers in a 1566 document.
1568/70: BNE 10,292.
1569: ASN Sommaria, Dip., Ser. I, 25: stato del patrimonio 1569. roads: gr 9/hearth tax to finance the roads; billeting: gr 17/hearth to pay the

billeting (allogiamento) of men-at-arms; towers: gr 7/hearth to man the coastal watchtowers (*turre*); banditry: variable rate by province, to pay the constabulary (*barricelli di campagna*). We do not include a one-time levy to pay for the construction of towers, which amounted to D79,008.
1572: BNE 2659, 41r-47r.
1574: Calabria (1991; note that his figure for other taxes is imputed, see fn 23, p. 162) and Coniglio (1987, 405-437).
1579: BNE 2659, 391r-426r.
1583: Calabria (1991). The disgravio is added to the focatico. The total deductions includes exemptions on the donativo and so cannot be used here.
1585: BNE 2659, 97r-108r. The focatico includes the "disgravio" (see Calabria 1991, 136, Table 2, footnote (l)).
1585/86: Comiglio (1990, 265-66). The focatico includes the "disgravio". The stated amount for the gr 48 is supposed to be net.
1591/92: Faraglia (1876). D2,400 life pensions added back to the net revenues of the gr 48.
1596: Coniglio (1987, 691-92). Of the other taxes, only one (the allogiamento) is given.
1599: BNE 2659, fol 49r-63v. Cf. very similar numbers in Coniglio (1990, 143-45).
1600: ASN Sommaria dip., n. 25 (cf. Calabria 1991).
1602: BNE 8379, 41r-74r.
1605: Calabria (cf. Coniglio 1990, 407-409). The total deductions includes exemptions on the donativo and so cannot be used here.