# The Basilicata Wealth Fund: resource policy and long-run economic development in Southern Italy

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### Abstract

This paper introduces a novel resource policy for the resource-rich southern Italian region of Basilicata. This policy consists of establishing a regionally-owned wealth fund (labeled for simplicity as the Basilicata Wealth Fund), according to which royalty revenues from natural resources in Basilicata can be stored as low-risk financial assets in order to sustain future regional expenditures. The paper pins down and simulates the dynamics of a set of fiscal expenditure rules. The Basilicata Wealth Fund fosters transparency accountability as regards fiscal spending, hence avoiding misuse of resource revenues.

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# 1 Introduction

The aim of this paper is to put forward a novel fiscal policy rule for the resource-rich southern Italian region of Basilicata. By doing this, the paper contributes to the growing literature on the within-country macroeconomics and political economy of natural resources, as recently surveyed by Cust and Poelhekke (2015). The recent set of empirical studies on the resource-rich southern region of Italy by Percoco (2012), Iacono (2016), Viccaro et al. (2015), Rocchi et al. (2015) and Biasi & Rocchi (2016), jointly concludes that there has been missing (or rather negligible at best) growth effects from the prolonged and substantial oil extraction activity in Basilicata. More in detail, the reasons behind this evidence are explained as follows. Percoco (2012) exploits a geographical regression discontinuity design in order to obtain the causal effects of almost two decades (1991 − 2008) of large-scale oil extraction on the within-region per capita extra enterprise creation. The results of his study show a mild positive effect of $0,01$ per capita extra firms in the municipalities where extraction takes place (as compared to the municipalities with no resources), connected as well to a rather modest increase in employment of 2500 labour units. In a complementary way to Percoco (2012), the quantitative comparative case study by Iacono (2016) aims at estimating the general equilibrium effects of oil extraction activity and royalty revenues (for the period 1980 − 2009) on the Basilicata's regional economy. This is done by comparing a set of macroeconomic variables in Basilicata before-after the extraction activity, with a set of southern Italian regions constituting the control group. More in detail, Iacono (2016) implements the synthetic control method in order to construct a data-driven comparison unit to the treated region of Basilicata, and confirms that the causal effects on a set of regional macroeconomic variables (namely, real GDP per capita, employment rates and gross fixed investments) are, at best, negligible. In other words, this first couple of empirical studies has tried to estimate the causal effect of resource extraction and revenues on the regional economy of Basilicata, jointly concluding that the effect has been minimal. With a slightly different focus, the studies by Viccaro et al. (2015) and Rocchi et al. (2015) construct a multi-sector model of the Basilicata region built on a social accounting matrix, in order to analyze the potential impact on regional development (namely, on both economic growth and distributive aspects) of the actual allocation of royalty revenues (1997 − 2013). In this way, by comparing with the actual regional macroeconomic variables for Basilicata, one can conclude that the resource revenues have (or not) been destined to their most efficient and growth-enhancing uses. Results show here as well that the impact of oil earnings on the regional economy has not been substantial, despite the huge quantity of additional financial resources channeled into expenditure on regional development policies. Viccaro et al. (2015) and Rocchi et al. (2015) jointly conclude that a more productive use of resource revenues at the level of regional government might have resulted in stronger regional growth and higher employment rates. Another study by Biasi & Rocchi (2016) provides an estimation of the genuine saving dynamics for the region of Basilicata as compared to other regions of Italy, showing clearly that extraction of natural capital combined with unproductive revenue spending diminishes the overall sustainability of the process of regional

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economic development. To sum up, all these empirical studies converge on the conclusion that the past allocation of royalty revenues, mostly allocated to short-run social spending in these first couple of decades of resource exploitation, has not boosted the economic development of the region.

Summing up, the consensus that emerges from these empirical studies motivates the quest for a novel economic policy in order to avoid the myopic use of resources and to better exploit revenues from extraction of natural capital in Basilicata. The first and main contribution of this paper is to put forward and analyze the features of a regional fiscal rule designed to improve the transparency of government spending. The policy is to establish a (regionally-owned) wealth fund in which the entire stream of royalty revenues from non-renewable natural resource exploitation in Basilicata be converted into low-risk financial assets and stored. For the sake of simplicity and in order to be consistent with the title of this paper, the fund will be labeled as the Basilicata Wealth Fund (BWF, hereafter). The BWF would allow to smooth consumption and hence to transfer part of the current revenues onto future fiscal spending. The rationale for this policy can be justified on different grounds. First, by smoothing resource revenues over a longer period of time, one allows several generations to benefit from the current stream of resource revenues (labeled as the intergenerational motive). Second, the timing of productives uses for resource revenues might not always collide with the timing of the revenues stream (pinned down by extraction plans), hence the BWF would allow to provide a higher share of resource revenues to be used on the projects with long-run growth effects. Third, the transparency of the BWF would allow to avoid the political use of resource revenues for scopes which are not relevant for boosting the regional economy of Basilicata. More in detail, the BWF can be designed as a regionally-owned wealth fund, however independently administered from national authorities (for instance, as an independent legal entity under the jurisdiction of the Bank of Italy)[1]. This institutional framework does not substantially deviate from the current institutional framework, in which the region of Basilicata receives the 100% of the royalty revenues paid from extracting companies to the Italian State (Iacono, 2016). In order to show the analytics of the BWF, a clear-cut spending fiscal rule is presented in the paper. The simplest benchmark fiscal rule could be such that, for each given year, the regional government is allowed to use the annuity value of the financial wealth accumulated in the BWF. Deviations from this straightforward rule might also be conceived, for instance allowing larger spending in difficult times, as for example prescribed by the Chilean fiscal rule (Marcel et al., 2001). An intermediate and more general fiscal rule will be introduced and simulated in the course of the paper, allowing to invest in the BWF only a fraction of the stream of resource revenues.

The paper proceeds as follows: section 2 introduces the theory and practice of sovereign wealth funds, section 3 applies the analytical framework to the case of the Basilicata region, whilst section 4 concludes.

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[1]To the best of our knowledge, the only research conducted on the creation of regionally owned funds has been conducted by Braun-Munzinger (2009), who analyzed how these funds can help to implement the EU and European member states' Aid for Trade (AfT) commitments.

## 2 The analytical framework of the Fund

The aim of this section is to analytically present the details of the policy of establishing the Basilicata Wealth Fund. At first, the benchmark analytical model of the fund will be presented, by pinning down the fiscal spending rule formulation and the resulting fund dynamics. In addition, a more general spending rule will be presented (labeled as the "mixed" rule), based on a combination of both the actual rule and the spending rule with the fund. The main scope behind a wealth fund is to postpone the use of the resource revenues by smoothing their spending path. In addition, the resource price and the timing of the resource revenues becomes irrelevant for the spending dynamics. Let us describe the features of the analytical framework behind the wealth fund, relying on the main framework of the model developed in Iacono (2017).

The BWF would prescribe that the entire income from royalty revenues for a given year $R_t$ (with $R_T = 0$ due to resource depletion at $t = T$) be stored and converted into low-risk financial assets ($r$ is the constant net interest rate). Defining as $A_t^{bwf}$ the amount of resource wealth allocated in the BWF, it gives the following fund dynamics in discrete time:

$$A_{t+1}^{bwf} = (1 + r)\left[A_t^{bwf} + R_t - g_t^{bwf}\right], \tag{1}$$

in which $g_t^{bwf}$ is the regional government fiscal spending rule. The simplest stylized formulation of the fiscal spending rule is the following:

$$g_t^{bwf} = \left(\frac{r}{1+r}\right)A_t^{bwf}, \tag{2}$$

in which $\left(\frac{r}{1+r}\right)A_t^{bwf}$ represents the annuity value of the financial wealth accumulated in the BWF; i.e., the regional government would be allowed to consume only the return on financial wealth which has been previously invested. The fiscal spending rule in (2) draws heavily on the actual Norwegian spending rule linked to the Norwegian sovereign wealth fund (Harding and van der Ploeg, 2013). Notice that the fiscal spending rule in (2) does not imply anything as regards the composition of the expenditure. It is relevant to remind that deviations from the rather conservative benchmark fiscal spending rule $g_t^{bwf}$ can be agreed, in order to allow higher spending in difficult times. As opposed to (2), the current fiscal spending rule of the regional government of Basilicata is basically given by:

$$g_t = R_t. \tag{3}$$

A first clear advantage of the fiscal spending rule given in (2) with respect to the actual spending rule in (3), is that once exhaustible resources are depleted at $t = T$ (and hence, $R_T = 0$), regional government expenditure will still be positive due to previously accumulated financial wealth:

$$g_T^{bwf} > g_T = R_T = 0. \tag{4}$$

The clear-cut formulation of the fiscal spending rule $g_t^{bwf}$ in (2) was chosen as well in order to enhance analytical tractability. In fact, $g_t^{bwf}$ can be now inserted back into (1) in order to get:

$$A_{t+1}^{bwf} = (1+r)\left[A_t^{bwf} + R_t - \left(\frac{r}{1+r}\right)A_t^{bwf}\right], \qquad (5)$$

$$A_{t+1}^{bwf} = A_t^{bwf} + (1+r)R_t. \qquad (6)$$

For the sake of completeness, I will now solve the difference equation given in (6), which gives:

$$A_t^{bwf} = A_0^{bwf} + (1+r)\sum_{s=0}^{t-1} R_s. \qquad (7)$$

As it can be seen from (7), in the post-depletion period we have $A_{T+s}^{bwf} = A_T^{bwf}$, with $(s = 1, .., n)$, due to $R_T = 0$. By substituting the last result from (7) back into the BWF spending rule (2), we obtain a formulation of the fiscal spending rule $g_t^{bwf}$ which is a function of exclusively exogenous terms, precisely the entire stream of royalty revenues $\sum_{s=0}^{t-1} R_s$ and the initial condition for the wealth fund given by $A_0^{bwf}$:

$$g_t^{bwf} = \frac{r}{1+r}\left[(1+r)\sum_{s=0}^{t-1} R_s + A_0^{bwf}\right]. \qquad (8)$$

In conclusion, the main feature of the BWF spending rules exemplified in (2, 8) is that fiscal spending at time $t$ is no longer strictly depending on the uncertain stream of resource revenues deriving from royalty payments. In other words, current fiscal spending will instead be now a fraction of the size of the financial wealth $A_t^{bwf}$ previously accumulated in the BWF. The advantage of this in terms of public policy is clear-cut, since it reduces the dependence of the current expenditure on the resource price, and allows to use resources only when growth-enhancing investment projects become feasible.

## 2.1 The mixed rule

This subsection aims at introducing a more general fiscal spending rule, which encompasses aspects from both the actual spending rule and the BWF rule. This will be named as the "mixed" rule hereafter. The target is to design a more pragmatic rule with a lower degree of conservatism than the BWF rule, and which is a function of the economic development of the region. The mixed rule prescribes that only a fraction of the entire income from royalty revenues for a given year $R_t$ be stored in the BWF. The formulation of the mixed fiscal spending rule is the following:

$$g_t^m = \gamma R_t + \left(\frac{r}{1+r}\right)A_t^m, \qquad (9)$$

in which $\gamma = \frac{R_0}{R_T}$ is a parameter indicating the positive fraction of royalty revenues $R_t$ which is directly used for current consumption. $R_0$ is considered as the minimum value for future regional expenditure, and will be calibrated to the regional economy of Basilicata in the simulation section. The logic behind this fraction is twofold. On one side, the rule ensures that the current level of regional expenditure from royalties is maintained. In addition, the rule prescribes that the difference $R_T - R_0$ is invested and saved in the regional wealth fund. Notice that the positive fraction $\gamma$ of the royalties destined to current consumption implies in any case a less conservative policy than the one prescribed by the BWF in (2). As it was the case for the previous fiscal rule given by the BWF, the term $\left(\frac{r}{1+r}\right) A_t^m$ in (9) represents the annuity value of the financial wealth already accumulated in the Fund. Let us present the fund dynamics for the case of the mixed rule. The formulation of the fiscal spending rule $g_t^m$ in (9) can be inserted back into (1) so to obtain:

$$A_{t+1}^m = A_t^m + (1 + r)(1 - \gamma) R_t. \tag{10}$$

which implies a fund dynamics similar to (6), without the total fraction of royalty revenues destined to current consumption and given by $\gamma$. In conclusion, notice that the mixed rule corresponds to a general version of the fiscal rules in (3) and (2). For $\gamma = 1$, no royalty revenues are invested and stored in the BWF fund, hence (9) would give back (3). For $\gamma = 0$, (9) would be again equal to (2).

Notice that, in case future income from royalties becomes lower that the pinned down value in $R_0$, then $\gamma > 1$. In that circumstance, the fund dynamics will become the following:

$$A_{t+1}^m = A_t^m + (1 - \gamma) R_t. \tag{11}$$

This implies that a fraction of the royalties will be employed for current expenditure, and the fund's stock will temporarily shrink.

## 2.2 The institutional framework

This subsection focuses mostly on a wealth fund case study at the country level, namely a sovereign wealth fund. The relevancy of a national sovereign wealth fund case for the resource policy proposal of this paper relies on the possibility that such a national framework be translated to a within-country institutional setting. The Norwegian experience will be given a prominent role in this subsection, as a benchmark framework in order to highlight the practices of establishing and successfully running a sovereign wealth fund. The Norwegian experience with management of petroleum resources and more precisely the history of the Government Pension Fund Global (GPFG) has been analyzed by Caner and Grennes (2010), Harding and van der Ploeg (2013) and Holden (2013). The proposal of establishing a wealth fund in order to store resource revenues for future generations of citizens dates back as far as 1983, when the "Tempo Utvalg" (which stands for "Speed Committee" in Norwegian, referred to the velocity of the extraction process). However, it took more a decade of parliamentary debate before the fund was actually established, in 1996. At the beginning, the Norwegian

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wealth fund did not comprise an ad hoc spending rule, hence the national government was spending ahead of both current and future oil revenues (this consumption pattern can be theoretically justified by the Permanent Income Hypothesis, as developed in Iacono, 2017). In 2001, the ad hoc fiscal spending rule based on the annuity value of the financial wealth allocated in the fund was introduced, and since then Norwegian government authorities have been roughly spending each year a 4% of the fund's accumulated wealth. The previous section has proposed for the BWF a fiscal spending rule based on the Norwegian experience, although the interest rate determining the annuity value should be tailored to the size of the BWF and to the necessity of the Basilicata region.

The establishment of a regional wealth fund at the sub-national level in Italy might partially borrow from the Norwegian experience, however it is important to point out that a new institutional framework should be designed, tailored to the new within-country context. As the Norwegian wealth fund is a state-owned fund independently administered by the Norwegian central bank, the BWF could similarly be established as a regionally-owned fund independently administered by the central bank of Italy (Banca D'Italia), under a specific and transparent regulatory framework. Importantly, in order to ensure a smooth transition from the current framework, the allocation agreement of resource revenues between the State and the southern region of Basilicata should not be modified. More in detail, the region of Basilicata receives currently from the Italian state the 100% of the royalty revenues paid from extracting companies on the value of the oil extracted (Iacono, 2016). This will not be modified with the establishment of the BWF, since the resource revenues stored in the Fund will still be regionally-owned. However, the administration of the resource revenues will be modified in the sense of limiting discretionary fiscal spending.

Two examples of within-country resource wealth funds should also be mentioned in this subsection, namely the experiences of the Canadian province of Alberta and of the U.S. federal state of Alaska. The first lesson that can be derived from these two experiences is that, although both Canada and U.S. imply a context of stronger fiscal federalism than that of Italy, they have demonstrated the viability of the policy of establishing a resource fund at the sub-national level. The second lesson, mostly derived from the fund in Alaska, is that public distribution of dividend from the funds is an additional policy tool that can be implemented if the scope is to bypass the government apparatus. A detailed overview of the resource funds' experiences in Alberta and Alaska can be found in Baena et al. (2012).

In conclusion, some political economy considerations. The economics literature on the management of natural resources (surveyed in Deacon, 2012) has indicated that the efficacy of the use of resource windfalls depends crucially on the quality of institutions. For instance, lack of strong institutions can lead to higher corruption, as in Brollo et al. (2013), and determine a sub-optimal exploitation of the resource windfalls. The establishment of the BWF responds precisely to this recommendation, by avoiding that the quality of the local institutions (i.e., the regional authorities in power) influences to a large extent the spending path of the royalty revenues. On the other hand, the quality of institutions at the national level would still play a key role when it comes to

designing the BWF, pinning down the rules of the game and being responsible of the supervision of the BWF.

# 3   Simulation of the spending rules

This section aims at showing how the BWF would function in practice, by calibrating the analytical framework described above in (1-9) to the actual series of royalty revenues $R_t$ received from the Basilicata region, from 1997 to 2014. Once the series for the fund dynamics from (6) has been simulated inserting the actual series of royalty revenues $R_t$, it will be then possible to compare the consumption series for the actual spending rule (3) with the BWF spending rule (2), and with the mixed spending rule (9).

In order to show the different dynamics for the fiscal spending rules in the post-depletion era, it is assumed for simplicity that resource depletion happens at $T = 2015$[2]. The full time range of the simulation exercise is $1997 - 2050$, hence including both a pre- and post-depletion period. First, let us plot the time series for the actual fiscal spending rule $g_t = R_t$, which reflects the actual royalty revenues $R_t$ (constant 1996 Euros, millions):

[INSERT FIGURE 1 HERE]

As it can be seen from Figure 1, the highly volatile series of the actual royalty revenues increases substantially from the end of the 1990$s$; from $T = 2015$ onward, fiscal consumption for the regional government drops however to null as a consequence of depleted resources and absence of royalty revenues. The actual royalty revenue series transferred from the Italian state to the Basilicata region for the period $1997 - 2014$ has been retrieved from UNMIG[3].

The next step is simulating the series $A_t^{bwf}$ for the BWF as given in (6), which is a function of actual royalty revenues $R_t$ and which incorporates the fiscal spending rule $g_t^{bwf}$ given in (2)[4]. The constant net interest rate is assumed to be $r = [0.02; 0.04; 0.06]$, which is a set of values that takes into account the BWF's administration costs and inflation. The time series for the BWF can be plotted as follows:

[INSERT FIGURE 2 HERE]

As it is shown in Figure 2, allocation of royalty revenues to the BWF drives the exponential growth of financial wealth accumulated in $A_t^{bwf}$ until the depletion year, from which the amount of wealth accumulated stays constant, as predicted in (7). This is due

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[2]Alternatively, depletion could have been assumed to take place in the medium to long run. To do so, it would have been necessary to specify a theoretical model for the resource income from which royalty revenues are derived.

[3]Royalties transfers in Euros were provided by UNMIG (Italian Ministry of Economic Development, General Direction for Energy and Mineral resources) and are available online at *http://unmig.sviluppoeconomico.gov.it/*.

[4]Time series obtained from the simulation exercise are available from the author upon request.

to the fact that the rather conservative fiscal spending rule $g_t^{bwf}$ does not imply higher consumption than the annuity value of the fund's financial wealth. Any deviation from such a rule in the sense of higher current consumption of royalty revenues would imply a flatter accumulation of financial wealth in the BWF.

The next step is to jointly plot the fiscal spending series given by the actual spending rule (3) from Figure 1 and the BWF spending rule (2) for each of the values in $r = [0.02; 0.04; 0.06]$, in order to evaluate the gap in consumption between them. The resulting figure is:

[INSERT FIGURE 3 HERE]

The joint plot of Figure 3 shows the gap between the different consumption dynamics emerging from the actual spending rule and the ones based on the BWF. The gap in consumption between the actual and the BWF rule is in any case positive and substantial in the pre-depletion era, whilst it becomes negative in the post-depletion period. The absolute value of these gaps is shown to be highly dependent on the level of the constant net interest rate $r$. Another noteworthy feature of the BWF rule is that the consumption level monotonically increases up to the stable post-depletion level; hence, no unexpected reductions in the royalty revenues occur, as it is the case for the actual spending rule (dropping from a 2013 consumption level of approximately 145 millions Euros to null in 2015). This aspect has political economy relevance, insofar as instantaneous expenditure reductions are not a desired feature for the regional authorities.

Let us now proceed by introducing the mixed rule in the simulation exercise. As mentioned above, the target of the mixed rule is to provide the regional authorities with a rule implying a lower degree of conservatism than the BWF rule, and which is as well a function of the economic development of the region. In practice, this implies that the mixed rule will allow a consumption level somewhere in between the actual and BWF rules (this applies to both in the pre and post-depletion era), with the gaps between these rules determined by the level of the parameters $\gamma$ and $\beta$. Figure 4 adds the mixed rule to the plot of Figure 3, for the specific case of ($r = 0.04; \beta = 0.2; \gamma = 0.2$):

[INSERT FIGURE 4 HERE]

As shown in Figure 4, the pre-depletion consumption level implied by the mixed rule is strictly higher than the one implied by the more conservative BWF rule. On the contrary, in the post-depletion period the BWF rule dominates the consumption level of the mixed rule. As for the actual rule, the mixed rule implies a sudden reduction in consumption due to depletion, although this reduction is less substantial[5].

An important remark has to be made about the above simulation of the mixed rule. It can be pointed out that the actual series for the regional expenditure $gov_t$ and the

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[5]Note that the dramatic reductions in consumption expenditure due to depletion in Figure 4 rely on our assumption of unexpected depletion in 2015. In more realistic terms, a stock of non-exhaustible resources will reach depletion gradually. In that case, the actual and the mixed rule would prescribe a monotonically declining consumption series without jumps.

regional income $y_t$ employed to simulate the mixed rule in Figure 4 already includes the potential growth effect of royalty revenues up to the depletion year[6]. In other words, in order to estimate the causal effect on consumption of setting up the BWF compared to using the actual spending rule, regional expenditure and income series should be adjusted by subtracting the estimated effect of royalty revenues throughout the pre-depletion era. In order to take this aspect into account, we have simulated different scenarios for the regional expenditure, the regional income and the ratio between them. We can conclude that none of these simulations delivered values for the ratio $\frac{gov_t}{y_t}$ outside the range of values [0.25 − 0.34] which we obtain by simply using the actual series, as done in Figure 4. In addition, the idea of using the actual series of regional expenditure and regional income is based on the consensus from the summary of the literature given in the introduction, pointing to the negligible effect of royalty revenues on regional growth in Basilicata up to recent years.

In conclusion, some sensitivity results were obtained by plotting the mixed rule for different values for $r, \gamma$ and $\beta$ (see Figure 5 for the consumption series, and Figure 6 for the fund's assets). The scope is to show the combinations of consumption and fund's assets dynamics under the various parameterizations. Ultimately, the aim is to highlight a set of feasible combinations of $\gamma$ and $\beta$ that could be inserted in the institutional agreement between national and regional authorities. For high values of $\gamma$ and $\beta$ ($\gamma = 0.3; \beta = 0.3$), the total fraction of royalty revenues allocated to current consumption increases. Hence, higher pre-depletion consumption allows the regional authorities to substantially invest in local economic development policies in the short-run, however reducing the size of the fund (and hence future consumption expenditure) in the medium to long run. In addition, the higher pre-depletion consumption levels will be, the bigger the magnitude of the post-depletion drop in consumption (and in the regional government expenditure) becomes. A thorough evaluation of these aspects should be conducted in order to tailor the fund's implication for current and future consumption to the needs of economic policy financing of the regional authorities.

## 4 Concluding remarks

The aim of this paper was to propose and evaluate a new resource policy for the oil-rich southern Italian region of Basilicata. The resource policy developed consists of establishing a regional wealth fund in order to store royalty revenues from exploitation of non-renewable natural resources. In addition, the paper posited a transparent and clear-cut spending fiscal rule to implement the fund, aiming to foster the long-run impact of resource revenues. Deviations from the benchmark BWF rule were also conceived by the means of a mixed rule, allowing larger spending in times of economic recession. A thorough simulation exercise presented an example regarding how the BWF would allow the regional government of Basilicata to smooth consumption of the royalty revenues towards long-run economic development objectives.

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[6]Data about regional government expenditure and income were retrieved from ISTAT - Conti e aggregati economici territoriali, available at: *http://dati.istat.it/*.

The greatest advantage from the creation of the BWF, paired with a fiscal spending rule, is to increase the focus on long-run economic development and higher political accountability, hence avoiding misuse of resource revenues for myopic fiscal spending. An additional novelty aspect of the resource policy proposed in this paper, is that establishing a regionally owned wealth fund administered by national authorities could be considered as an additional policy option for other resource-rich regions in the world.

Further research on this issue could be carried on by conducting a welfare-based evaluation of the consumption gap between the different fiscal rules; or otherwise by narrowing down the simulation exercise to an even more detailed calibration of the actual profile of the Basilicata economy, in order to forecast the impact of the BWF on the economic development of the region. In order to increase the accuracy of these forecasts, the royalty revenues should explicitly be formulated as a function of the resource price, as to consider different values for the variance of the resource income.

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Figure 1: Actual spending rule
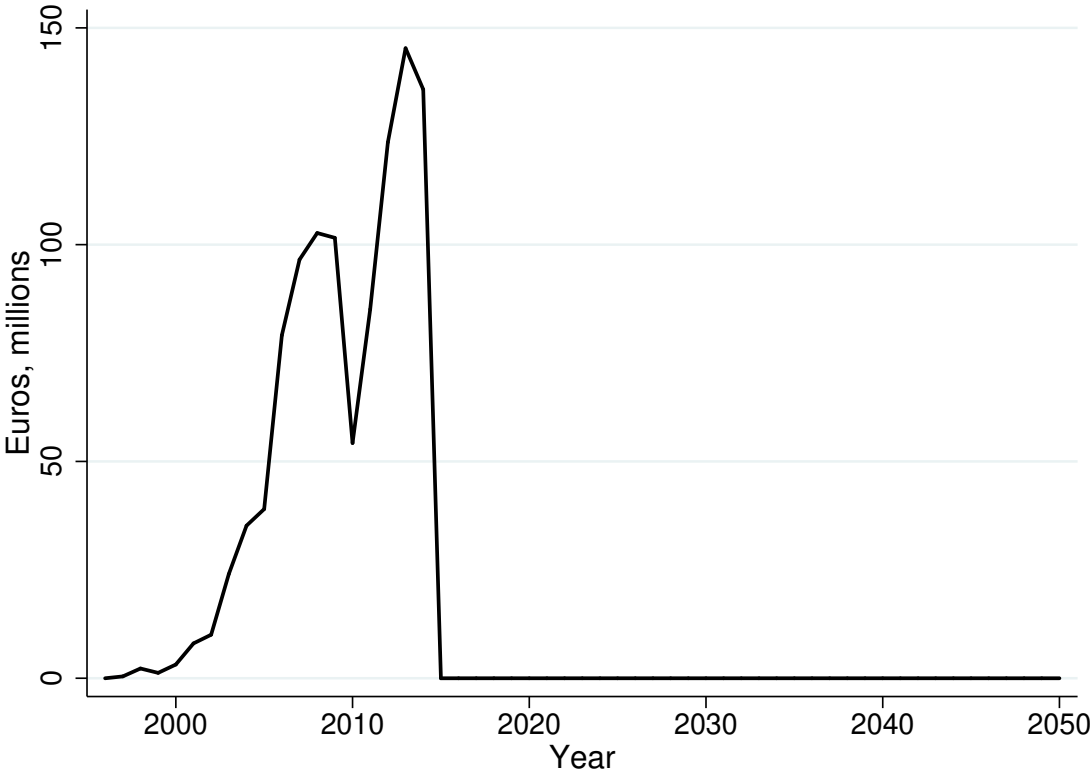


*Note*: Actual spending rule, Euros, millions. Authors' computation.
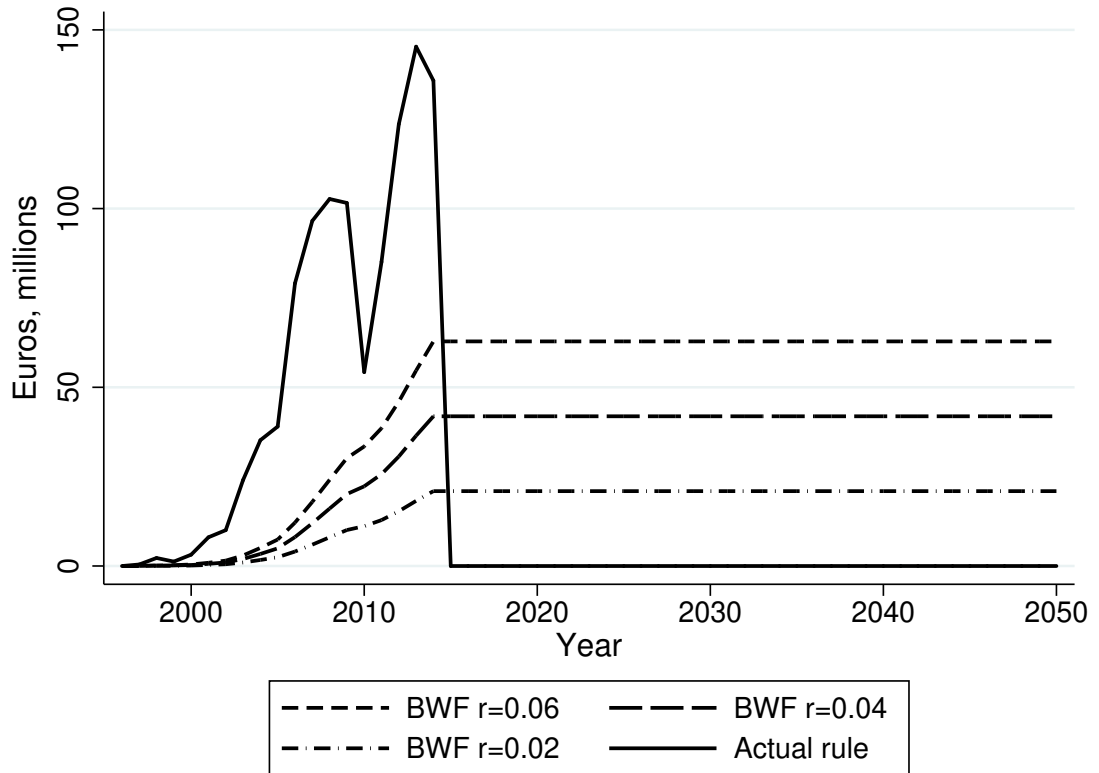
Figure 2: BWF assets
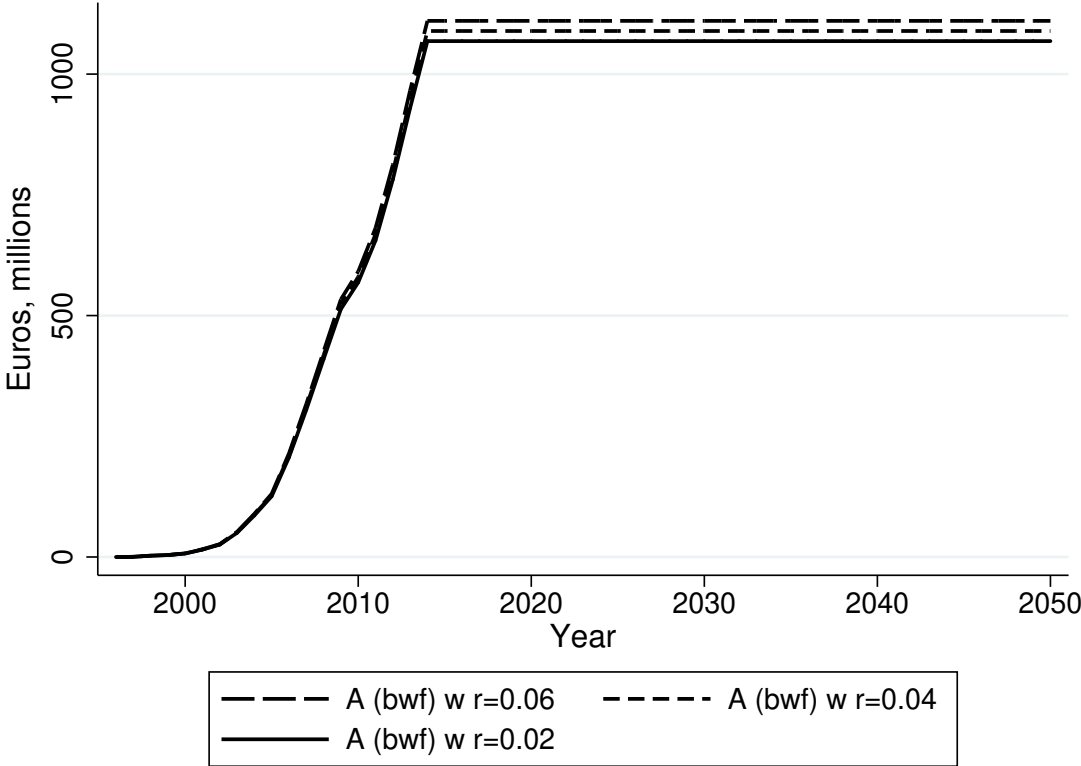
*Note*: BWF assets, Euros, millions. Authors' computation.
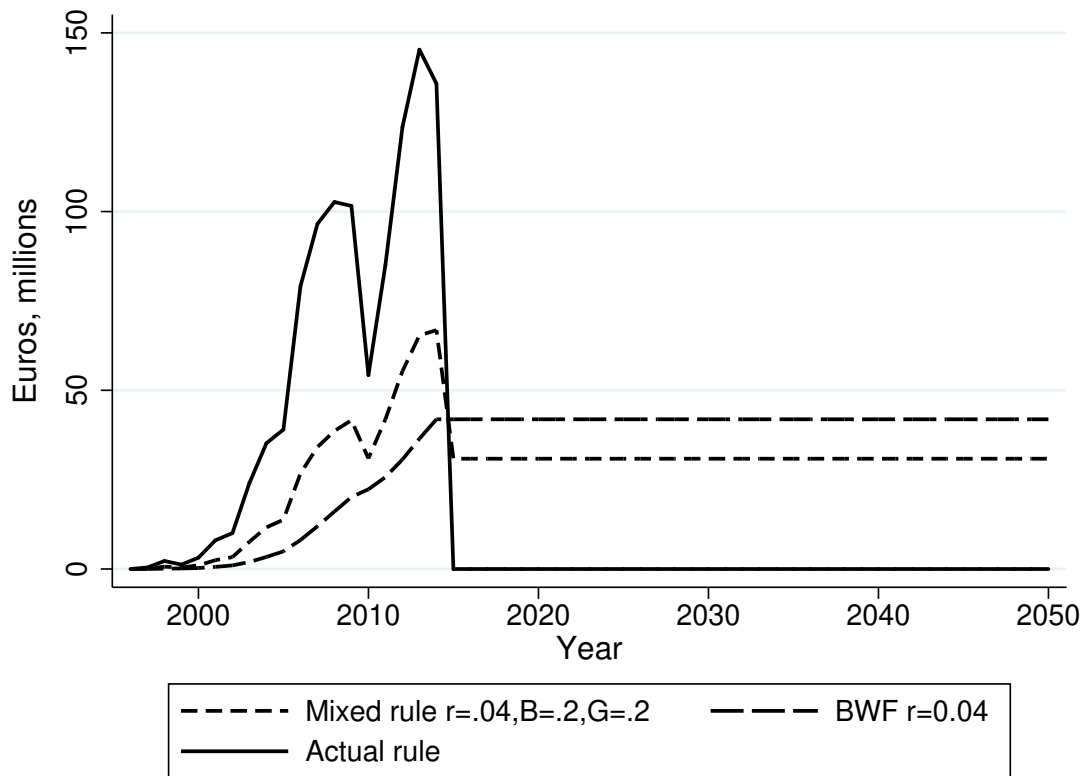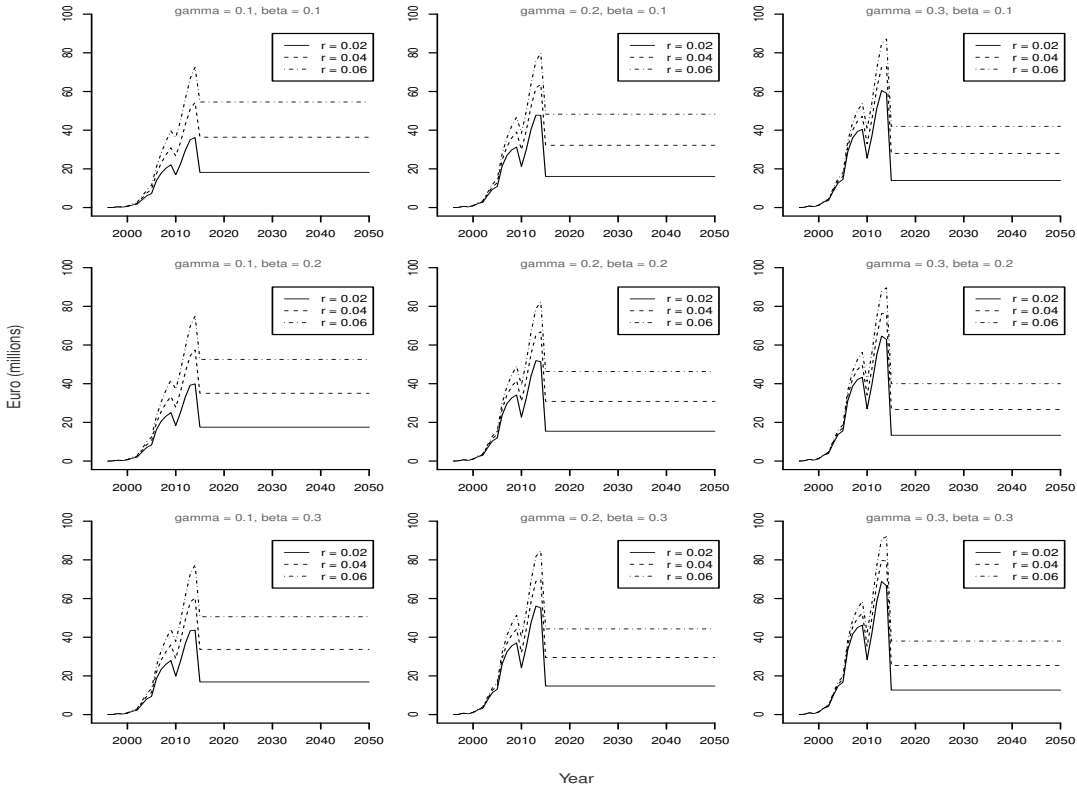
Figure 3: Actual vs. BWF rule



*Note*: Actual vs. BWF rule, Euros, millions. Authors' computation.
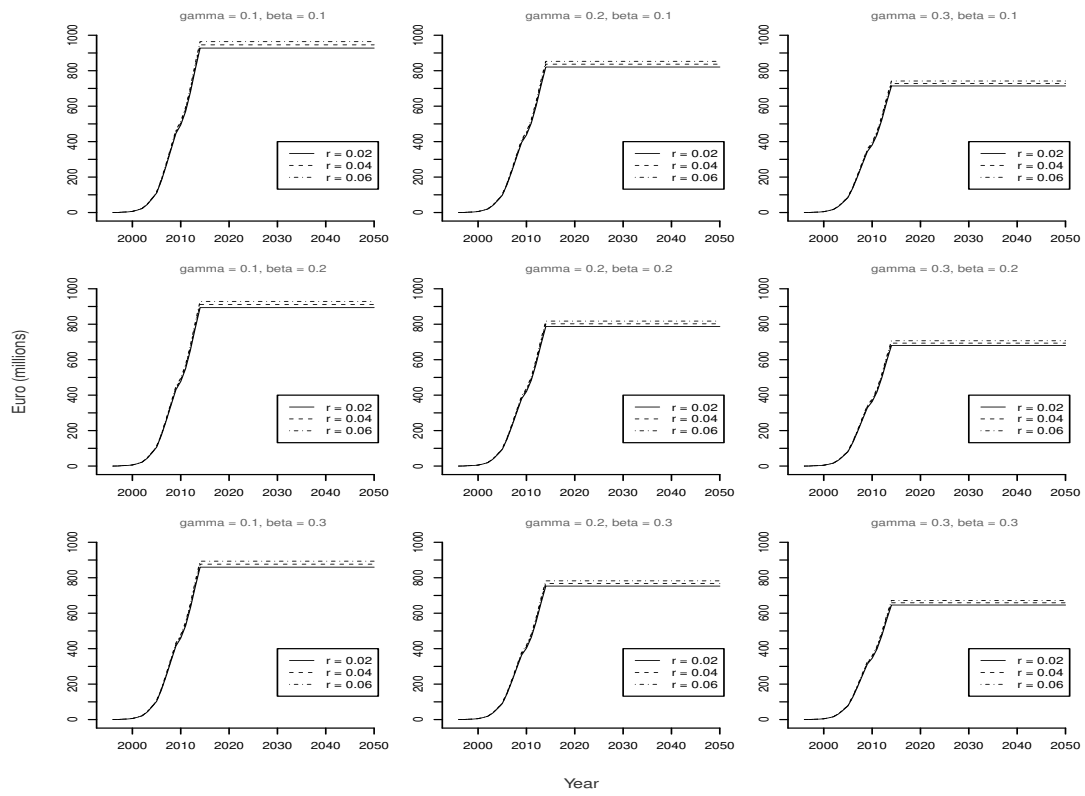
Figure 4: Actual vs. BWF vs. Mixed rule



*Note*: Actual vs. BWF vs. Mixed rule, Euros, millions. Authors' computation.

Figure 5: Consumption dynamics, Mixed rule



*Note*: Consumption dynamics, Mixed rule, Euros, millions. Authors' computation.

Figure 6: Assets dynamics, Mixed rule



*Note*: Assets dynamics, Mixed rule, Euros, millions. Authors' computation.