Supplementary Materials for

A Get Out The Vote (GOTV) Experiment on the World's Largest Participatory Budgeting Vote in Brazil

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1 Experimental Subjects

We have email and phone lists from previous voters in the PB vote (43,384 cases with both SMS and email listed). This means that we have at least one point of contact with 27.4% of all voters in 2012 and 2013 PB vote. Historical PB vote data indicates that 22.4 percent of voters for which we have email vote in both 2012 and 2013. Among all voters in 2012 and 2013 the equivalent number is 18.2 percent.

2 Number of Cases and Missing Data Handling

The vote choice data was transferred to us in a table with columns for a timestamp, region id, treatment group and a JSON encoded string of the options each voter chose. There were a total of 11,350 cases in the dataset across our four treatment groups. While a majority of Coredes do list a dollar value next to each proposal. We exclude subjects in these regions from the analysis. In total, 4,193 subjects are in Coredes without costs

We calculate the costs chosen by each subject by summing the costs of their chosen options in the first part of the ballot. 215 cases are in Coredes which have costs listed, but do not have costs listed for all choices that a voter made. We excluded these cases in the main analysis for the paper, because it was not possible to calculate a total cost of the ballot options. However, we also tried running the analysis including these cases

and imputing the missing measures as zero (because no cost was listed). This analysis has no impact on the null findings.

Issue areas
For the issue selection analysis, there were 200 cases where there are no selections in the second section of the ballot. 192 of these, had selections in other parts of the ballot so it appears that the subjects merely failed to fill in this part of the ballot either intentionally or otherwise. There are a further 8 cases in which the voter didn't select any additional options.

For all of these cases, we treat these choices as zeros for each of the four issue areas (so we code them as not having selected health, not having selected infrastructure, not having selected security and not having selected other). However, rerunning the analysis excluding either the 8 cases or all 200 cases has no effect on the findings, with all results not coming anywhere close to significance.

3 Pre-Analysis Plan and Deviations

Prior to conducting the experiment, we submitted a pre-analysis plan to Experiments in Politics and Governance (available at http://e-gap.org/). We followed the analysis plan closely with the only minor deviations.

The first deviation is that the extrinsic treatment group received one additional email prior to the PB vote due to miscommunication between two government departments about whether a message had been reviewed. Consequently, the extrinsic group received both the extrinsic message and the informational message shortly afterwards. Since the informational message only contained content that was already included in the previous extrinsic message, we believe this is unlikely to have had a significant impact on the results.

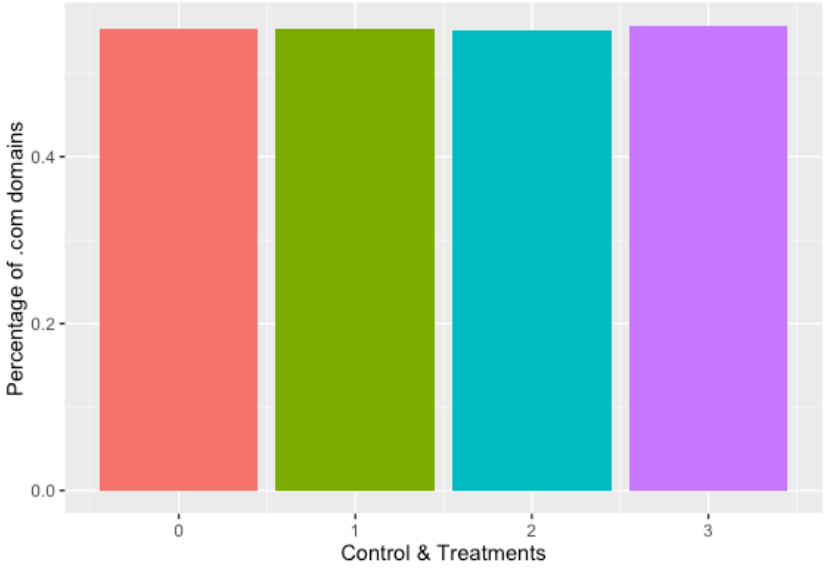
The second deviation is that we did not send out an IVR follow-up call on the last day of voting as we stated in the pre-analysis plan. The primary reason for this is that we couldn't guarantee that the budget for IVR calls would fully cover contacting everyone in the treatment group, so we felt that it was better to leave out this contact rather than risk introducing extra complexity and possible bias into the experiment.

The third deviation is that we were not able to conduct spot checks on voter lists on the day. This was intended to assess how many of our subjects voted offline instead of online. This was not possible due to most polling stations not providing a voter list to our enumerators.

4 Balance Across Treatment Arms

To check whether random treatment assignment resulted in a balanced sample, we can examine the proportion of .com email addresses in the sample, see Table. There is no significant deviation from the distribution of .com email addresses across the treatment arms.

Fig 1. Balance Across Control and Treatment Arms in Terms of Proportion of Email Addresses Ending with .com.



5 Attrition/Substitution

The results we present in the main text show a 4.7 percentage point increase in online turnout. However, we do not have equivalently accurate figures for whether people in our sample voted offline. This poses two potential problems.

The first problem is attrition: some of our encouragements may have made voters more likely to vote offline as well as online. Although we did not mention the offline vote in our messaging, it is the longer standing institution and voters may have responded by attending the polls in person. To the extent that this is a problem, it would tend to mean we are understating the effect of our GOTV treatments.

The other potential issue is that the increase in online turnout we observe is due to substitution rather than encouragement. That is, voters who might have otherwise voted offline chose instead to vote online because they were made aware of the convenience. To the extent that substitution is a problem, we would be overstating the effect of GOTV effects.

We have a number of reasons to suspect that both of these problems are not large. Firstly, our sample is drawn from people who have voted online in at least one of the last two Participatory Budgeting elections. This means that everyone in the sample is aware of and has previously used the online system. Treatment group attrition is likely to be of a small magnitude, as all our treatments specifically directed voters to the online vote without mentioning the offline one. Previous survey work has shown that only 36.9% of online participatory budgeting voters would have voted if the online vote had not been an option.[1]

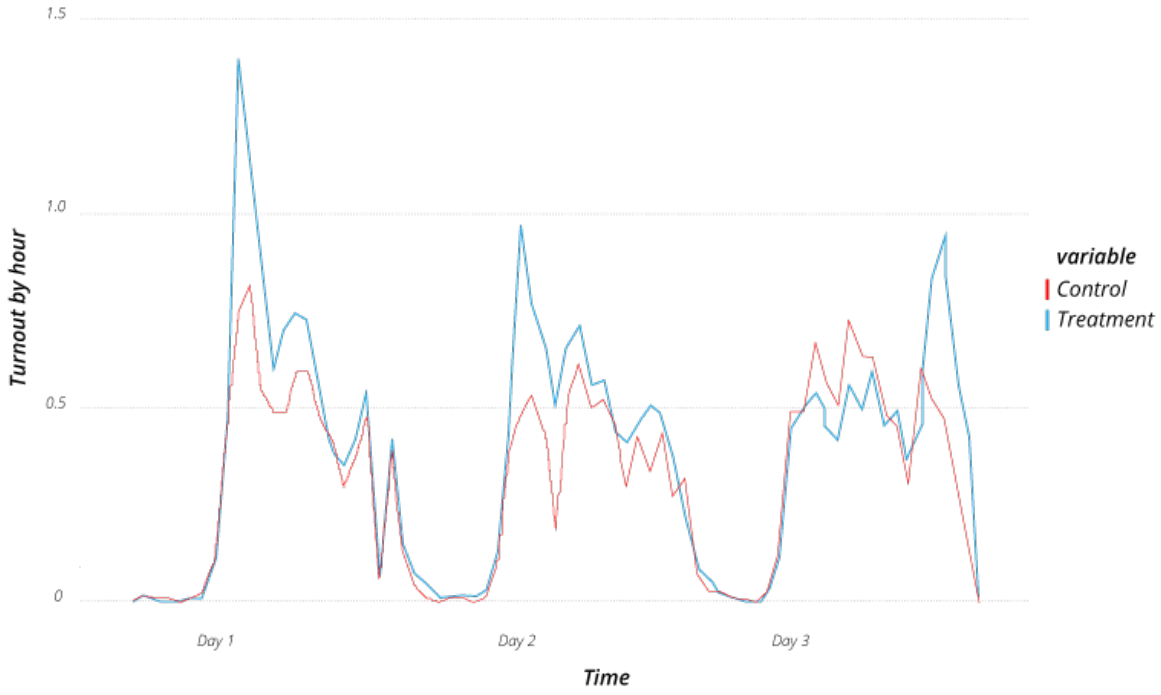
[1] Spada, P., Mellon, J., Peixoto, T., Sjoberg, F.M., 2015, Effects of the Internet on Participation: Study of a Public Policy Referendum in Brazil, World Bank Policy Research Working Paper Series (PRWPS).

Our pre-analysis plan aimed to address attrition through the use of offline spot-checks at polling stations. By checking the voter lists, we would be able to make a very approximate estimate of offline turnout within our control and treatment groups. Unfortunately the offline vote was conducted in a disorganized manner and many polling stations visited did not have a voter list available for inspection.

6 Turnout by Time with Treatments

Although our experiment is not designed to distinguish the relative impact of different modes of contact, we can look at when turnout increased in the treatment group compared with the control group. **Fig 2** shows the turnout in each hour according to treatment group with the treatment timings indicated. Both email times are associated with a large spike in treatment turnout. However, the effect of the SMS contact is less clear, as the increase does not line up particularly clearly with the turnout increase on that day.

Fig 2. Turnout By Hour For Control And Treatment Groups With Email Timing Indicates By Vertical Red Lines And SMS Sending Period Indicated By Pink Region**.**



7 False Discovery Rate (FDR) Adjustment

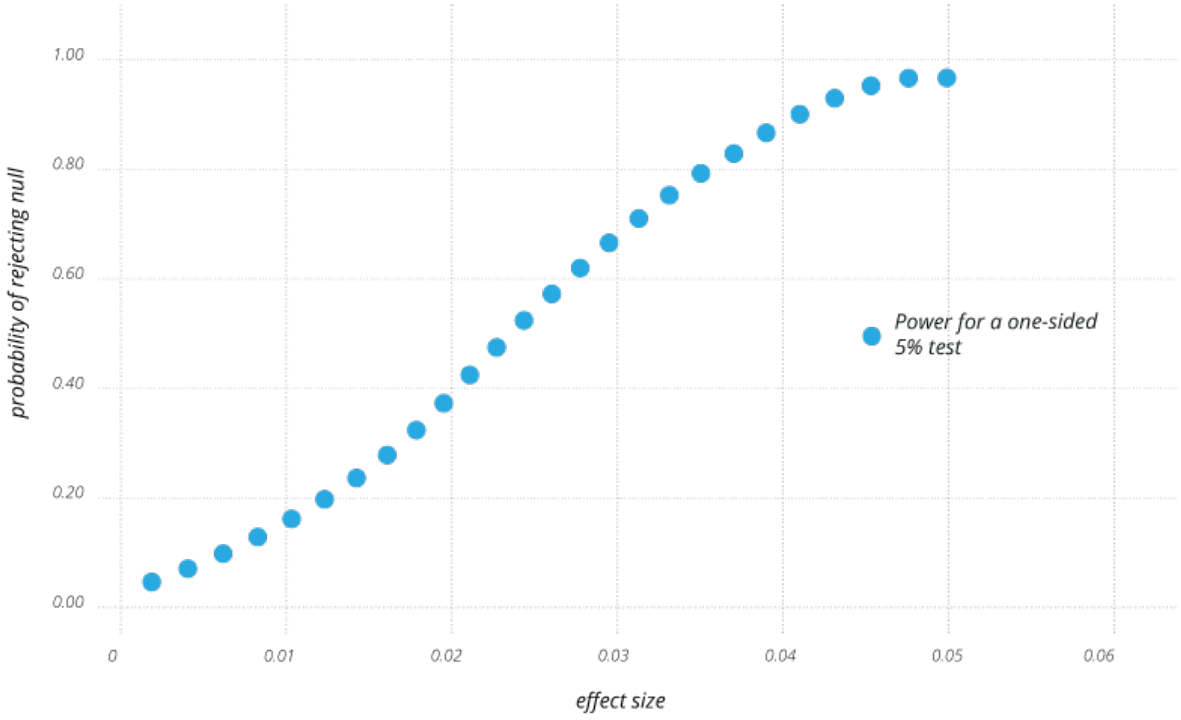
Since we are testing multiple treatments against each other and the control as well as against predicting multiple dependent variables, some p-values from the linear models would be likely to come out significant merely by chance. We follow recent literature in attempting to control the false discovery rate (the proportion of rejected nulls that are

type 1 errors). As we specified in the pre-analysis plan, we adjusted for the false discovery rate within each dependent variable section: one adjustment for the turnout effects, one adjustment for the cost effects and one adjustment for the sectoral preferences. The main turnout effect was not adjusted as a positive result there is a prerequisite for many of the subsequent hypotheses. This stratified FDR adjustment follows the advice of Sun et al. who show that the aggregated FDR is a weighted average of the stratified FDRs. We adjust the p-values using Benjamini & Hochberg's method implemented in R's base statistics package.

8 Power Calculations

For statistical power we calculated the needed sample for detecting an effect of the messaging treatments increasing turnout (pooled) with a sample of 40,000, a 40 percent contact rate and 80 percent of the subjects treated. Given that the turnout rate among the subjects was 22.4 percent in 2013 we reach 80 percent power with an expected treatment effect of 3.2 percentage points (or a 14.3 percent increase in turnout).

Fig. 3. Power Against A Null Of Zero Effect Given A Significance Level Of .05.

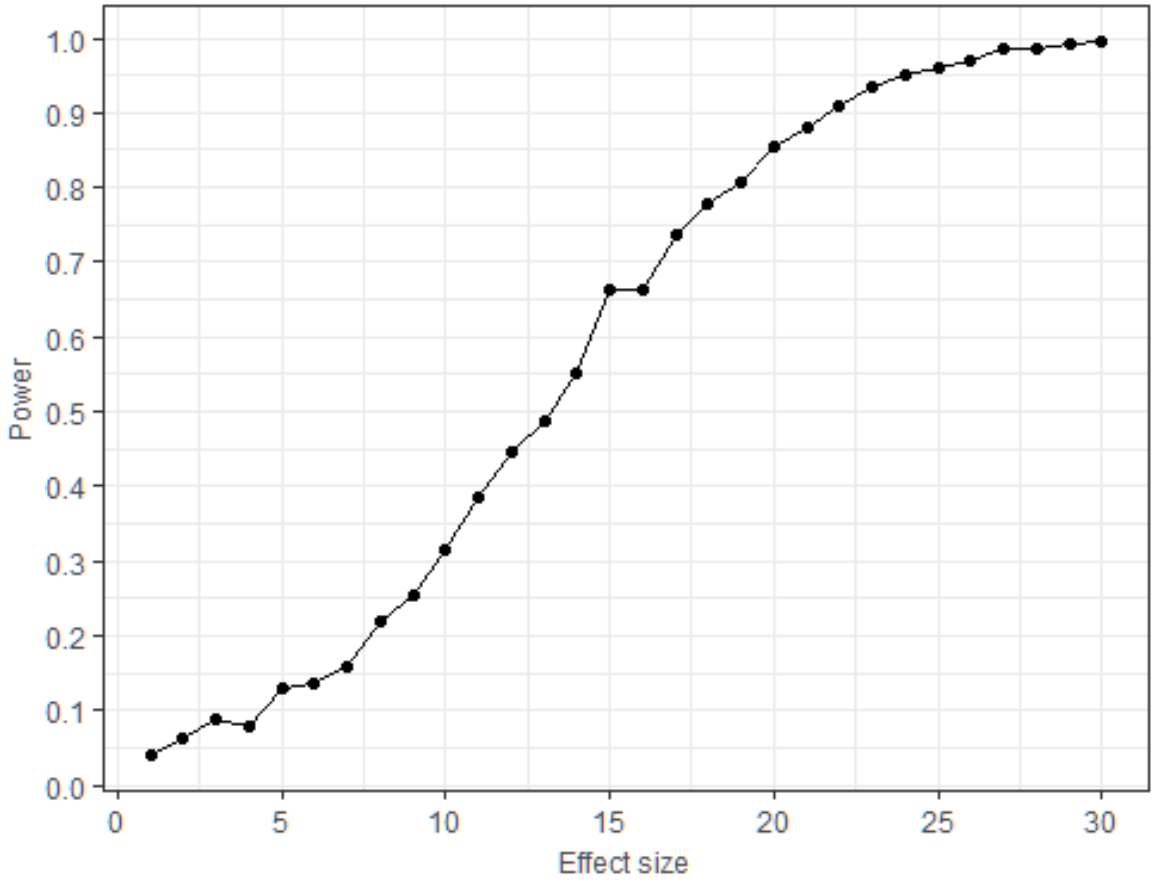


Three percentage points is relatively high compared to some existing literature (especially on email) but there have been SMS experiments that have documented an increase of that magnitude (Dale and Strauss 2009). Moreover we are here combining

both email and SMS and therefore it would seem that we have enough statistical power to reject the null of no treatment effect.

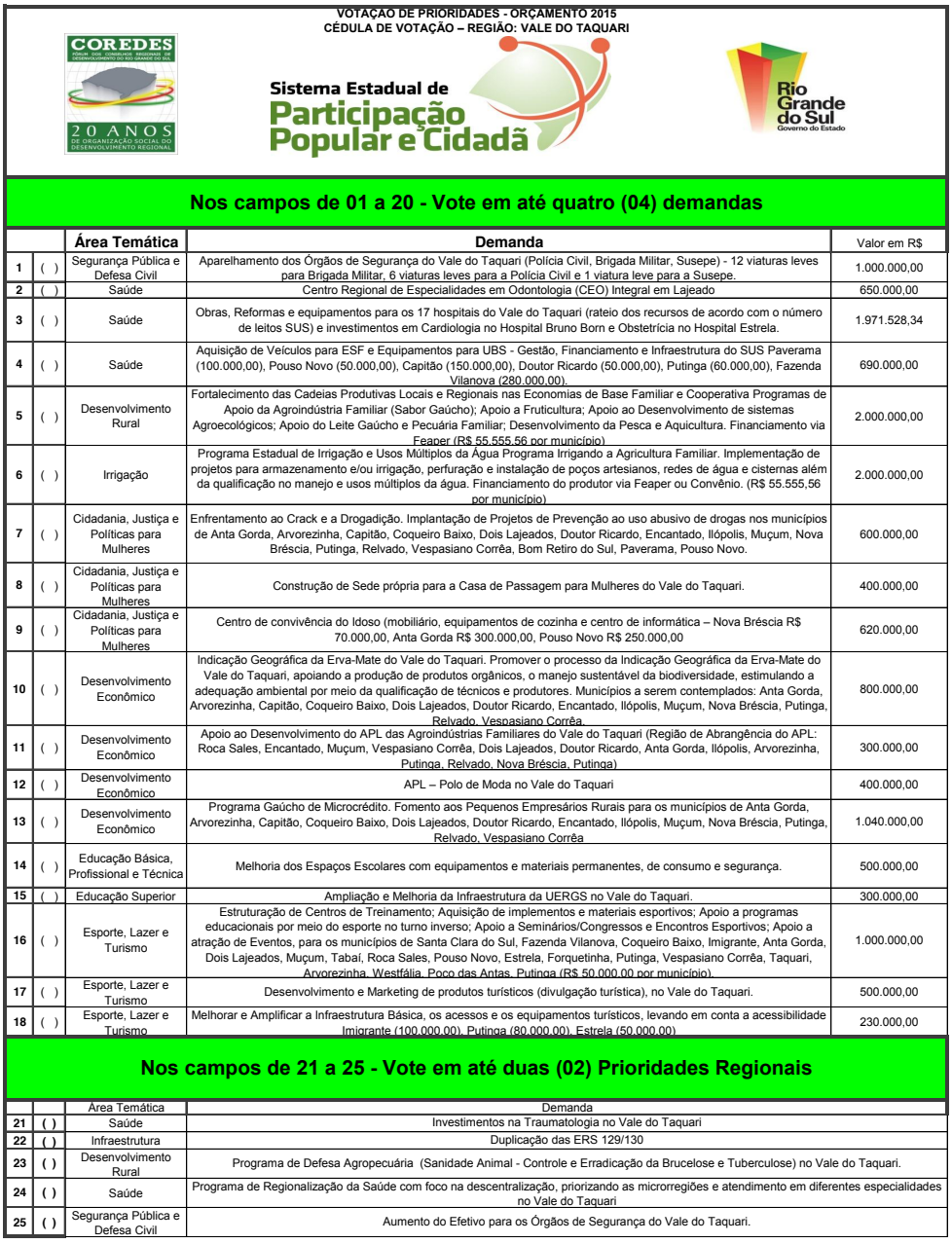
We additionally calculate the power to detect a difference in preferences between regular voters and encouraged voters, given the empirically observed combined GOTV effect size. We have more than 80% power at a 19 percentage point gap between regular and encouraged voters.

Fig. 4. Power Against A Null Of Zero Effect Given A Significance Level Of .05.



9 Ballot

Below is an example of a ballot from one of the 28 PB areas.



VOTAÇÃO DE PRIORIDADES - ORÇAMENTO 2015
CÉDULA DE VOTAÇÃO – REGIÃO: VALE DO TAQUARI

COREDES 20 ANOS DE ORGANIZAÇÃO SOCIAL DO DESENVOLVIMENTO REGIONAL

Sistema Estadual de Participação Popular e Cidadã

Rio Grande do Sul Governo do Estado

Nos campos de 01 a 20 - Vote em até quatro (04) demandas

		Área Temática	Demanda	Valor em R$
1	( )	Segurança Pública e Defesa Civil	Aparelhamento dos Órgãos de Segurança do Vale do Taquari (Polícia Civil, Brigada Militar, Susepe) - 12 viaturas leves para Brigada Militar, 6 viaturas leves para a Polícia Civil e 1 viatura leve para a Susepe.	1.000.000,00
2	( )	Saúde	Centro Regional de Especialidades em Odontologia (CEO) Integral em Lajeado	650.000,00
3	( )	Saúde	Obras, Reformas e equipamentos para os 17 hospitais do Vale do Taquari (rateio dos recursos de acordo com o número de leitos SUS) e investimentos em Cardiologia no Hospital Bruno Born e Obstetrícia no Hospital Estrela.	1.971.528,34
4	( )	Saúde	Aquisição de Veículos para ESF e Equipamentos para UBS - Gestão, Financiamento e Infraestrutura do SUS Paverama (100.000,00), Pouso Novo (50.000,00), Capitão (150.000,00), Doutor Ricardo (50.000,00), Putinga (60.000,00), Fazenda Vilanova (280.000,00).	690.000,00
5	( )	Desenvolvimento Rural	Fortalecimento das Cadeias Produtivas Locais e Regionais nas Economias de Base Familiar e Cooperativa Programas de Apoio da Agroindústria Familiar (Sabor Gaúcho); Apoio a Fruticultura; Apoio ao Desenvolvimento de sistemas Agroecológicos; Apoio do Leite Gaúcho e Pecuária Familiar; Desenvolvimento da Pesca e Aquicultura. Financiamento via Feaper (R$ 55.555,56 por município)	2.000.000,00
6	( )	Irrigação	Programa Estadual de Irrigação e Usos Múltiplos da Água Programa Irrigando a Agricultura Familiar. Implementação de projetos para armazenamento e/ou irrigação, perfuração e instalação de poços artesianos, redes de água e cisternas além da qualificação no manejo e usos múltiplos da água. Financiamento do produtor via Feaper ou Convênio. (R$ 55.555,56 por município)	2.000.000,00
7	( )	Cidadania, Justiça e Políticas para Mulheres	Enfrentamento ao Crack e a Drogadição. Implantação de Projetos de Prevenção ao uso abusivo de drogas nos municípios de Anta Gorda, Arvorezinha, Capitão, Coqueiro Baixo, Dois Lajeados, Doutor Ricardo, Encantado, Ilópolis, Muçum, Nova Bréscia, Putinga, Relvado, Vespasiano Corrêa, Bom Retiro do Sul, Paverama, Pouso Novo.	600.000,00
8	( )	Cidadania, Justiça e Políticas para Mulheres	Construção de Sede própria para a Casa de Passagem para Mulheres do Vale do Taquari.	400.000,00
9	( )	Cidadania, Justiça e Políticas para Mulheres	Centro de convivência do Idoso (mobiliário, equipamentos de cozinha e centro de informática – Nova Bréscia R$ 70.000,00, Anta Gorda R$ 300.000,00, Pouso Novo R$ 250.000,00	620.000,00
10	( )	Desenvolvimento Econômico	Indicação Geográfica da Erva-Mate do Vale do Taquari. Promover o processo da Indicação Geográfica da Erva-Mate do Vale do Taquari, apoiando a produção de produtos orgânicos, o manejo sustentável da biodiversidade, estimulando a adequação ambiental por meio da qualificação de técnicos e produtores. Municípios a serem contemplados: Anta Gorda, Arvorezinha, Capitão, Coqueiro Baixo, Dois Lajeados, Doutor Ricardo, Encantado, Ilópolis, Muçum, Nova Bréscia, Putinga, Relvado, Vespasiano Corrêa.	800.000,00
11	( )	Desenvolvimento Econômico	Apoio ao Desenvolvimento do APL das Agroindústrias Familiares do Vale do Taquari (Região de Abrangência do APL: Roca Sales, Encantado, Muçum, Vespasiano Corrêa, Dois Lajeados, Doutor Ricardo, Anta Gorda, Ilópolis, Arvorezinha, Putinga, Relvado, Nova Bréscia, Putinga)	300.000,00
12	( )	Desenvolvimento Econômico	APL – Polo de Moda no Vale do Taquari	400.000,00
13	( )	Desenvolvimento Econômico	Programa Gaúcho de Microcrédito. Fomento aos Pequenos Empresários Rurais para os municípios de Anta Gorda, Arvorezinha, Capitão, Coqueiro Baixo, Dois Lajeados, Doutor Ricardo, Encantado, Ilópolis, Muçum, Nova Bréscia, Putinga, Relvado, Vespasiano Corrêa	1.040.000,00
14	( )	Educação Básica, Profissional e Técnica	Melhoria dos Espaços Escolares com equipamentos e materiais permanentes, de consumo e segurança.	500.000,00
15	( )	Educação Superior	Ampliação e Melhoria da Infraestrutura da UERGS no Vale do Taquari.	300.000,00
16	( )	Esporte, Lazer e Turismo	Estruturação de Centros de Treinamento; Aquisição de implementos e materiais esportivos; Apoio a programas educacionais por meio do esporte no turno inverso; Apoio a Seminários/Congressos e Encontros Esportivos; Apoio a atração de Eventos, para os municípios de Santa Clara do Sul, Fazenda Vilanova, Coqueiro Baixo, Imigrante, Anta Gorda, Dois Lajeados, Muçum, Tabaí, Roca Sales, Pouso Novo, Estrela, Forquetinha, Putinga, Vespasiano Corrêa, Taquari, Arvorezinha, Westfália, Poço das Antas, Putinga (R$ 50.000,00 por município).	1.000.000,00
17	( )	Esporte, Lazer e Turismo	Desenvolvimento e Marketing de produtos turísticos (divulgação turística), no Vale do Taquari.	500.000,00
18	( )	Esporte, Lazer e Turismo	Melhorar e Amplificar a Infraestrutura Básica, os acessos e os equipamentos turísticos, levando em conta a acessibilidade Imigrante (100.000,00), Putinga (80.000,00), Estrela (50.000,00)	230.000,00

Nos campos de 21 a 25 - Vote em até duas (02) Prioridades Regionais

		Área Temática	Demanda
21	( )	Saúde	Investimentos na Traumatologia no Vale do Taquari
22	( )	Infraestrutura	Duplicação das ERS 129/130
23	( )	Desenvolvimento Rural	Programa de Defesa Agropecuária (Sanidade Animal - Controle e Erradicação da Brucelose e Tuberculose) no Vale do Taquari.
24	( )	Saúde	Programa de Regionalização da Saúde com foco na descentralização, priorizando as microrregiões e atendimento em diferentes especialidades no Vale do Taquari
25	( )	Segurança Pública e Defesa Civil	Aumento do Efetivo para os Órgãos de Segurança do Vale do Taquari.