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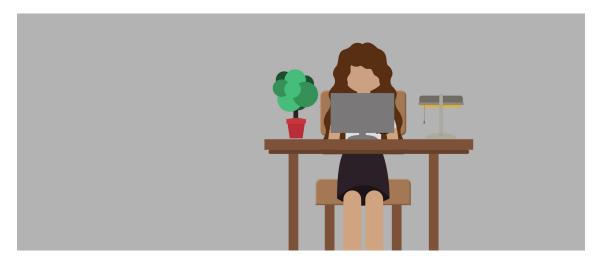
#### **Budget 2018 and Interactive Media: How to Design Nuanced Games on Complex Topics**

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Instead of displaying the complexity of the budget-making process, the Union Budget Game fulfills another objective: of solely focussing on fiscal deficit. The options in the game reinforce that subsidies need to be "cut," while defence and infrastructure expenditure is to be increased further.

How are budgets made? The process is notoriously difficult to understand for many. A vast array of choices, the trade-offs involved in those choices, and the consequences of making those choices—all these make the budgeting process a complex dance. At the same

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time it is imperative that people understand this critical aspect of the governing process by which sparse resources are allocated. How then can budgets be made more accessible?

Consider the recently released "The Union Budget Game: Who wants to be the Finance Minister?" by Hindustan Times, Mint, and HowIndiaLives (hereafter referred to as the Union Budget Game). You, the player, is invited to step into the shoes of the finance minister and experience the trade-offs and difficult choices involved in the budgeting process.

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As stated in the preamble, the objective of the Union Budget Game is for the player to experience the complex trade-offs and high stakes involved in the union budgeting process, where we have "scarce resources to pursue a multitude of goals".

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Crafting the budget is an annual reminder of a fundamental lesson of economics: we have scarce resources to pursue a multitude of goals.

While governments have more leeway to borrow compared to private firms or individuals, they too are subject to the constraints imposed by their creditors.

Just as people and companies make tough decisions every day, so must policymakers accept trade-offs: pursuing one goal often means giving up another. But for the government, the stakes are much higher because the trade-offs involve the lives of millions.

In this budget game, you have a chance to play the finance minister. You'll start by deciding what cuts are needed. Remember, cutbacks may upset people.

After making cuts, you can decide what to spend on and how much. Be careful: too much splurging will increase the fiscal deficit, raising borrowing costs, stoking inflation, and undermining the economy's stability.

Screenshot of the Union Budget Game

Games provide a powerful medium for the player to learn by experiencing trade-offs and complex choices in a given context. As always, there is just one caveat—the game has to be designed well.

#### **Stated Objective and Game Design**

The stated objective of the game is key to designing the game, for all the game elements flow from that stated objective. We use the following definition of a game:

Games provide a structured, non-confrontational, realistic environment which allows players to immerse themselves in the situation, experience the consequences of their actions, and subsequently learn from them (Shubik).

David Kolb's (1984) model of experiential learning consists of four elements: concrete experience, observation and reflection, the

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formation of abstract concepts and testing in new situations.

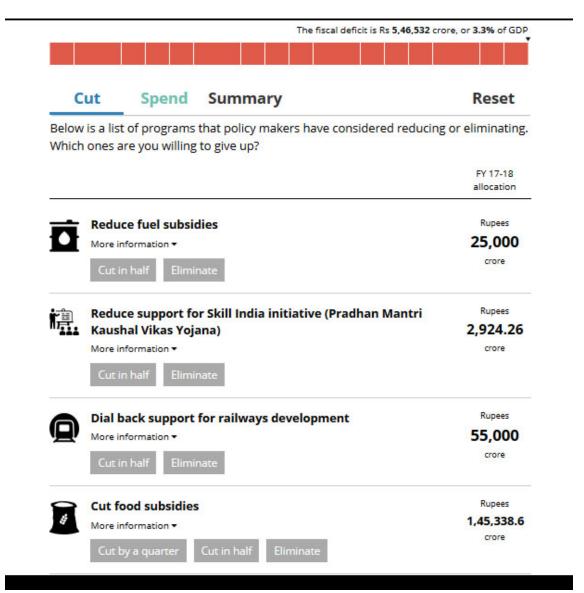
Does the Union Budget Game achieve the stated objective of facilitating the understanding of the complex choices and trade-offs that go into budgeting? In this article, we argue that the game design does not let the player understand the complex trade-offs in the budgeting process, but fulfils a different objective altogether: focus on the fiscal deficit. Drawing from existing research on game design, we will unpack the game and illustrate the issues in the design, and propose an alternative design that addresses these issues raised.

#### The Unstated Objective: Focus on Fiscal Deficit

In the Union Budget Game, you, the player, are first asked to make "cuts". Then you are asked to decide on how much you want to "spend". Finally, there is a warning: "Be careful: too much splurging will increase the fiscal deficit, raising borrowing costs, stoking inflation, and undermining the economy's stability."

In a game, the first piece of information a player receives is their objective in the game, which becomes a guide for their actions in the game. In the Union Budget Game, the first game element the player sees is a red bar, which measures the fiscal deficit.

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Screenshot of the game, showing the red bar depicting the fiscal deficit on top of the screen.

Consider the visual placement and design of the bar: it is placed right on top, it is red in colour, and it is divided into tiny squares. The warning "Be careful: too much splurging will increase the fiscal deficit ..." reinforces the fiscal deficit. By reducing the player's objective to focus on the fiscal deficit, the value of using a game to understand the complexity of the budgeting process and

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the trade-offs involved is reduced.

The "objective for the player" is a key element in game design which anchors and guides choices (Salen and Zimmerman 2004). For instance, the objective for a player in chess is to checkmate the opponent's king. Take the game Universal Paperclips (which one should play at their own peril because in the end, you have no idea where all your time went). The objective is clear: make as many paperclips as you can, the count of which is placed on top of the screen. Whatever you do (increase marketing costs, increase computational resources, employ quantum computing), every single action is geared toward that one objective: making more paperclips.



Screenshot of the Universal Paperclips game, showing the total number of paperclips made on top; the objective for the player is to increase that number (Last accessed on 1 February 2018).

In the real-world, fiscal deficit is just one of the considerations in designing budgets (as indicated in the text prior to playing the game). Economic, political, and legal considerations go into making budgets (Norton and Elson 2002). There are ongoing debates as to whether clinging to numerical targets for fiscal deficits is sound policy, and many have questioned what is termed as "fiscal deficit fundamentalism" (Chandrasekhar 2017).

Goals for the budget can be partitioned into two categories: a set of goals for the nation irrespective of time or political climate and a set of goals based on the current state of the health of the union. As an

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example, in the speech to the Parliament on 28 February 1994, the then Finance Minister Manmohan Singh outlined six considerations:

- "First, we must accelerate the reform and modernisation of our tax system we began two years ago.
- Second, we must correct the slippage in the fiscal deficit that has occurred in the current year.
- Third, we must build on the demonstrable success already achieved in the external sector where our strong performance has vindicated our strategy of phased integration with the world economy.
- Fourth, the Budget must provide a major stimulus for a strong industrial recovery, especially for investment and capital goods production.
- Fifth, and most importantly, we must reorient our development policies and programmes to address more effectively the problems of poverty, unemployment and social deprivation which affect a large mass of our people, particularly in rural areas.
- Sixth, we have to consolidate and deepen the progress we have made in restoring the health of our banking system."

For instance, the Gross Domestic Product (GDP) often guides new policies in order to increase a country's produced capital but a game must incorporate Sustainable Development Goals, or SDGs. Therefore, choosing only one indicator narrows the action set for the player, and is not reflective of the real-world, unless the game is designed with the sole intention of bringing the fiscal deficit into focus.

#### **Design of Actions: What to Cut, What to Spend On**

Consider the actions a player can perform: the player has to first choose what "cuts" to make and then what to "spend" on. To start with, let us consider the areas the player can choose to cut spending on. The player is told that this is a list of "programs that policy makers have considered reducing or eliminating". And the player is asked which ones they are willing to give up.

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Programmes in the Union Budget Game that the player can choose to Cut by a quarter , Cut in Half , Eliminate	Allocation provided in the game (in INR Crores)
Reduce fuel subsidies <b>I</b>	25,000
Reduce support for Skill India initiative (Pradhan Mantri Kaushal Vikas Yojana)	2,924.26
Dial back support for railways development	55,000
Cut food subsidies	1,45,338.6
Cut fertilizer subsidies	70,000
Scrap or cut back on the Member of Parliament Local Area Development (MPLAD) scheme	3,950
Scrap or cut back on BharatNet	10,000
Cut support for information and publicity	860.4
Reduce support for the public broadcaster	3,427
Reduce support for promoting art and culture	2,461.05
Scrap the National AYUSH Mission	440.5
Cut back on the Clean Ganga Mission	2,300

Screenshot: All the programmest the game has listed in the "cut" section.

On the other hand, consider the programmes the players can choose to spend money on:

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Programmes in the Union Budget Game that the player can choose to spend.  The options are to increase by half  , double , or quadruple	Allocation provided in the game (in INR Crores)
Raise allocation for the National Health Mission (NHM)	26,691
Raise defence capital outlay	86,488
Hire and train more farm extension workers	233
Modernize land records	150
Raise allocation for judiciary	1,062
Modernize police force	2,022
Raise allocation for schools (Sarva Shiksha Abhiyan)	23,500
Raise allocation for the Central Pollution   Control Board	74
Raise allocation for the Ministry of Statistics and Programme Implementation	4,796
Raise allocation for the National Old Age Pension Scheme (NOAPS)	6,127
Raise allocation for rural roads (Pradhan Mantri Gram Sadak Yojana)	19,000
Raise allocation for rural electrification (Deen Dayal Upadhyaya Gram Jyoti Yojna)	4814

Screenshot: All the programmes the game has listed in the "Spend" section.

The programmes that can be cut and the programmes that the

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players can spend money on are designed in a way that they form a mutually exclusive set. Designing these "cuts" and "spends" as mutually exclusive sets implies that there are some programmes that are valid candidates for the chopping block, and there are some where you can increase spending.

Importantly, all the subsidies are on the chopping block. All infrastructure and defence programmes are in the "Spend" category. It is as though there can be no discussion on increasing subsidies or decreasing defence spending. Such a binary classification does not map to the complexities of the real-world, making the player choices trivial.

#### Ease of Play vis-a-vis Nuance

In game design, there is a lot of detail and nuance that needs to be abstracted. There are two considerations while abstracting: ease of play for the player, and fidelity to the complexity of the real-world. Ease of play depends on different factors, including the time available to play a game and the proficiency of the players in the subject matter, and fidelity is a result of the model's proximity to the real world (Hatzipanagos 2009). In this case, the audience is not considered to be an expert in creating the union budget, and therefore, the question then becomes is it possible to provide players with a model that captures the "desired" amount of complexity. By providing a mutually exclusive set of "cuts" and "spends", which help the player reduce the fiscal deficit, the model here reinforces a player's learning that it is "right" to always cut or cull certain subsidies whereas it is always "right" to spend more on certain programmes.

Take the programmes primed for "cuts" on the chopping block. In the real-world, there are arguments for increasing or decreasing spending on any of these programmes, while the game provides justification only for the cuts. For instance, take the recommendation "Cut food subsidies". You can click on "More Information", where the rationale for the cut is provided: "Food subsidies are less regressive than fertiliser or petroleum subsidies but still suffer from inefficient management by the Food Corporation of India (FCI) and from leakages in the public distribution system (PDS). The Shanta Kumar committee on food management reforms estimated that moving away from food-based transfers to cash transfers in large cities alone could save the

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exchequer Rs 30,000 crore annually."

In the real-world, there are arguments to be made both for and against cutting food subsidies, how much it should be cut by, and what are the considerations that need to be taken into account for cash transfers. Here is a short and elementary list of arguments both for and against (as shown in the table below).

By categorising food subsidies as something which can only be reduced, the game makers are advocating for a choice, rather than allowing the players to decide for themselves.

#### **Arguments For and Against Cutting Food Subsidies**

FOR	AGAINST
Discussion on food subsidies (CUTS 2005)	Between starvation and globalisation (Birchfield and Corsi 2010)
On whether non-merit subsidies are justified (Mehta and Singh 2008)	Holding the state accountable for hunger (Chopra 2014)
Preference for food-stamps and other alternatives over food subsidies (Jha and Ramaswami 2010)	Democracy and right to food (Dreze 2004)
Are agricultural subsidies causing more harm than good? (Clay 2013)	The food security debate in India (Dreze 2013)

infogram

Now, consider the choices provided for how much the food subsidy

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can be cut by. If you choose "Eliminate," there is a warning box that asks you to reconsider, "Heads up! Major cuts to food subsidies will likely to hurt many poor households, which depend upon the public distribution system. People could starve." If you choose "Cut in half", again a warning pops up: "Caution! Major cuts to food subsidies will likely to hurt many poor households, which depend upon the public distribution system. People could starve." Finally, if you choose "Cut by a quarter", there is no such warning, in turn implying that the model approves the player's choice, reinforcing the player's learning that food subsidies need to be cut at least by a quarter to reduce fiscal deficit.

#### **Trade-offs**

The union budget game is designed to make a player focus on b one programme at a time. Whereas, in real-life there are trade-offs, which are key to game design. Trade-offs force the player to weigh choices and reflect on why they make a certain choice. By directly connecting the choices of the programme cuts or expenditure with the fiscal deficit, the focus is squarely on the fiscal deficit, rather than the trade-offs between different programmes.

For instance, the player does not think about why there is such a large defence budget, and why. The player does not consider the need for such high subsidies in the context of India. In order to weigh different options, players need to be given "just-in-time" information.

Consider this simple revamp: Laying the choices next to each other would change the way the programmes are viewed. It makes the trade-offs apparent. In the way the game is currently designed, the trade-offs are almost non-existent. does not achieve that objective.

#### An Alternative Design

In this section, we provide mock-ups of an alternative design that can address shortcomings discussed earlier and help improve the efficacy of the tool.

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#### **The Union Budget Game**

Who wants to be the Finance Minister

You can choose how much to increase or decrease spending in a program by increasing or decreasing the size of the boxes.

Click on any box to know more about the programme.

Drag any edge to change box size.



An alternative design for the budget game

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- 1. Objectives in the game: Instead of a single red bar to help the player track the fiscal deficit, it would be more suited to provide the player with multiple objectives such as a projection of the attainment of SDGs, GDP, fiscal deficit, etc based on the player's investment decisions in order to help the player learn about the complexity of budgeting.
- 2. Game mechanics: Instead of mutually exclusive sets of programmes that can be cut and spent on, the player is shown all programmes, and they can decide if they would like to increase/decrease spending or eliminate it. The player is forced to think of consequences of these actions.
- 3. Trade-offs: We have already brought in trade-offs between the multiple objectives in the game as the resources at the player's disposal are limited and the player needs to balance the extent to which each of these objectives are met. Additionally, by creating a pool of policies that can be played with, the player now has to understand the consequences of increase or decrease in expenditure. In this context, having two such trade-offs (between the goals/objectives and between the actions) helps improve the fidelity of the game.
- 4. Objective of the game: The changes proposed to the design of the game elements and the interface for the game are a result of the idea that the game is meant to help the player understand the complexity of the budget-making process (by placing the player in the finance minister's role). In order to ensure that the player understands the consequences of their actions, it becomes important that the player can weigh the benefits and challenges of decreasing spending on a certain policy. By providing the this basket of choices on the same screen, the player is then forced to think about all the actions (reduce spending, increase spending, eliminate, etc) and the trade-offs therein, and this helps the player learn better. More information can be provided as further reading through hyperlinks as well.

Designing games as tools requires us to make decisions at the intersection of elements of play, reality of the world and the meaning a player derives from the game (Harteveld, 2011). It is possible to create a meaningful tool if our objectives for the tool are clearly defined and adhered to.

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