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Working Paper No. 937

Indian Fiscal Federalism at the Crossroads: Some Reflections

by

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and

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* This paper is an analysis of the issues highlighted on federal-state financial relations in the book launch of “Indian Fiscal Federalism,” written by Y. V. Reddy (former Governor, Reserve Bank of India and Chairman, Fourteenth Finance Commission) and G. R. Reddy (Advisor to Government of Telangana). The event was jointly organized by Indian Council for Research on International Economic Relations (ICRIER) and Oxford University Press on March 28, 2019.

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ABSTRACT

There is a growing recognition that fundamental changes are happening in Indian fiscal federalism ex post the abolition of the Planning Commission, the creation of the National Institution for Transforming India (NITI) Aayog, the constitutional amendment to introduce the Goods and Services Tax (GST), the establishment of the GST Council, and the historically high tax devolution to the states based on the 14th Finance Commission's recommendations.

Recently, policymakers and experts have raised a few issues, including: whether or not to make Finance Commissions "permanent" or to abolish them by making the tax devolution share constant through a constitutional amendment; the need for an institution to redress spatial inequalities in order to fill the vacuum created by abolishing the Planning Commission; and making the case for Article 282 of the constitution to be circumscribed. The debates are also focused on whether there is a need to establish a link between the GST Council and Finance Commissions, and if India should devise a mechanism of transfer that is predominantly based on sharing of grants for equalization of services rather than tax sharing. Creating a plausible framework for debt-deficit dynamics while keeping the fiscal autonomy of states intact and ensuring output gap reduction and public investment at the subnational level without creating disequilibrium were also other matters of concern. These debates are significant, especially when a group of states came together for the first time ever to question the terms of reference of the 15th Finance Commission amid growing tensions in federal-state relations in India.

KEYWORDS: Fiscal Federalism; Finance Commission; Revenue Sharing; Fiscal Equalization; Goods and Services Tax (GST); Public Debt; Fiscal Rules

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INDIAN FISCAL FEDERALISM AT THE CROSSROADS: SOME REFLECTIONS

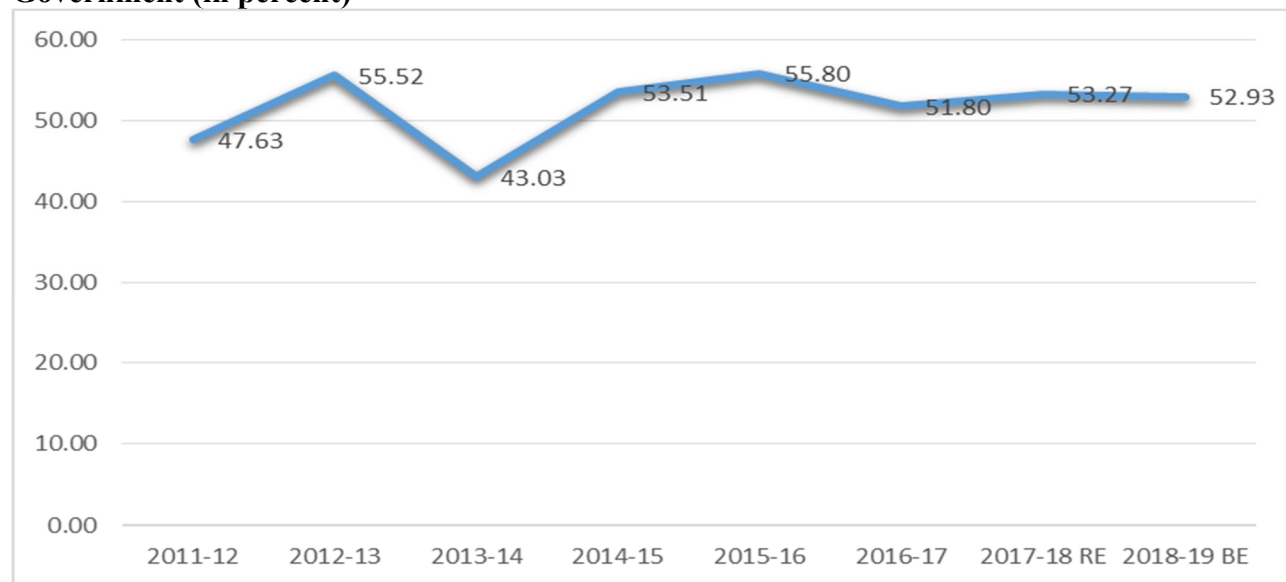
A Google search for “Indian fiscal federalism” shows 1.7 million results. The top hit among these results was the book on the topic written by Y. V. Reddy and G. R. Reddy (2019). Recent murmurings in India about fiscal federalism, as listed out by authors, are the following: (a) the chapter in the book, *Of Counsel*, written by the former Chief Economic Advisor Arvind Subramanian (2018) about the need for a new federalism framework; (b) former Finance Secretary and Chairman of the 13th Finance Commission (hereafter FC) Vijay Kelkar’s (2019) concerns about growing spatial inequalities; (c) former Chairman of the Prime Minister’s Economic Advisory Council and Chairman of the 12th FC Chakravarty Rangarajan’s urge to make the quantum of devolution mandatory through a constitutional amendment in the post–Goods and Services Tax (GST) era (The Hindu 2019); (d) the Reserve Bank of India (RBI) Governor Shaktikanta Das’s (2019) view to make the FCs permanent; and (e) the growing “trust deficit” among the states and the first-ever meeting by the state finance ministers on the terms of reference (TOR) for the 15th Finance Commission. Reddy and Reddy (2019) acknowledges that something fundamental was happening in Indian fiscal federalism and has given emphasis to these developments with empirical evidence, in which the hysteresis of fiscal federalism was analyzed to get the contemporary debates right.

42 PERCENT TAX DEVOLUTION: IS IT REALLY A GAME CHANGER?

The historically high 42 percent devolution of the central government’s divisible tax pool to the states, as recommended by the 14th FC, was hailed by governments and scholars in India and abroad alike. Y. V. Reddy, the chairperson of the 14th FC, meticulously explained the history of Indian fiscal federalism, inclusive of the states’ point of view and with a practitioner’s perspective on how has 14th FC arrived at doing a great thing. He has also consolidated the types of criticisms he encountered. The first criticism is that the states have so many resources ex post the 14th FC that the central government has lost its fiscal space. The second criticism is that the local bodies did not get their due. On the first criticism, he reiterated that it is factually incorrect, and clarified that intertemporally the real rise was not from 32 percent to 42 percent, but from 39

percent to 42 percent. As far as local bodies are concerned, he highlighted that more than 50 percent of the grants recommended by the 14th FC were for the local bodies. He explained that perhaps the “mistake” made by 14th FC was in not assigning “conditionality” to these grants. If we look at the aggregate transfers to the states as a percentage of gross revenue of the central government (figure 1), it has remained constant over the years.

Figure 1: Ratio of Aggregate Transfers to States to Gross Revenue Receipts of the Central Government (in percent)



Note: The fiscal data in India comes in three stages: first as budget estimates (BE); then after one year as revised estimates (RE); finally, the “actual” figures get published with a time lag.

Source: Union budgets (various years), Government of India

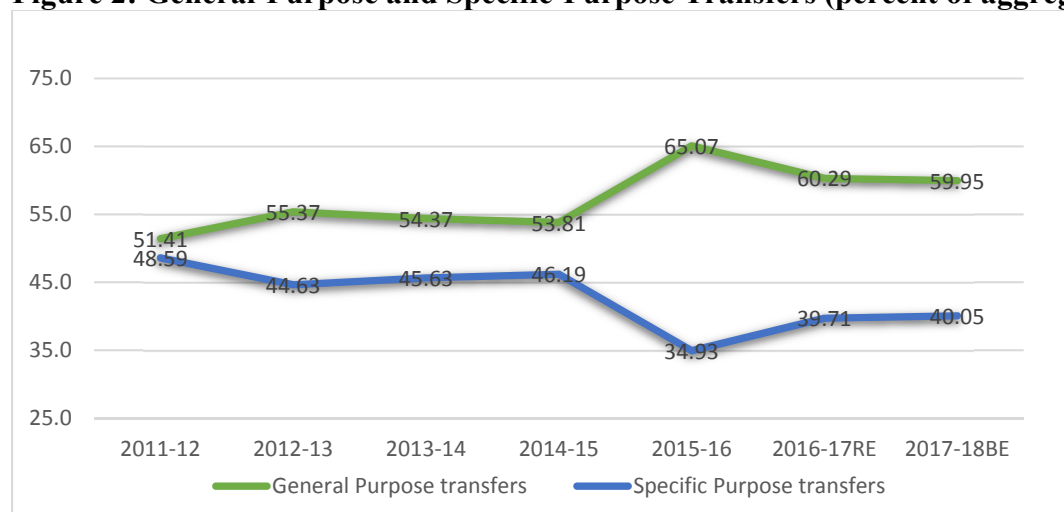
7TH SCHEDULE (ARTICLE 246) AND ARTICLE 282

A concern whether the labyrinth of “entitlement-based central legislations” (for instance, the Mahatma Gandhi National Rural Employment Guarantee Act of 2005, the Right of Children to Free and Compulsory Education Act of 2009, and the National Food Security Act of 2013) conflict with the 7th schedule of the constitution (based on Article 246) was one of the highlights of the federalism debate (Singh 2019).

The 7th schedule of the constitution clearly lays down the subjects for the union list (expenditure functions assigned to the federal government), the concurrent list (shared functions between

federal and state governments), and the state list (functions exclusively assigned to the state governments), with the expectation that each will respect the territorial limits of the other. Over the years, there has been a transgression of the central government into state subjects through centrally sponsored schemes (CSS) and the enlargement of the concurrent list (Reddy and Reddy 2019, 76) on the grounds that such spending will better serve national priorities. It was cautioned that through this process, the fiscal autonomy of the Indian states was severely circumscribed. Singh (2019) pointed out that the “original sin” was during the first five-year plan when hydroelectric power projects like Damodar Valley, Bhakra Nangal, and similar schemes in the states’ domain were funded by the central government. This intergovernmental fiscal transfer (IGFT) outside the purview of the FCs is the most sensitive part of the federal-state fiscal relations in India, as the states feel that these transfers are large, discretionary, arbitrary, and regressive (Reddy and Reddy 2019, 77). Have things changed after the 14th FC award? The answer is mixed. As evident from figure 2, the share of general-purpose transfers that are unconditional has increased from 51.41 percent of the total to around 60 percent of the total, with a corresponding decline in specific-purpose or conditional transfers (Chakraborty et al. 2018).

Figure 2: General-Purpose and Specific-Purpose Transfers (percent of aggregate transfers)



Source: Chakraborty et al. (2018)

Article 282 of the constitution says: “The Union or a State may make any grants for any public purpose, notwithstanding that the purpose is not one with respect to which Parliament or the Legislature of the State, as the case may be, may make laws.” Though Article 282 embodies merely a residuary power, it has been misused totally outside the frames of constitution. How to

resolve this contradiction, which creates a dichotomy in the functions of the FCs, requires wider debate (Singh 2019). With the 42 percent tax devolution and the rationalization of CSS—mostly conditional grants—prior to the abolition of the Planning Commission, there is a “triumph of experience over expectations” (Reddy and Reddy 2019, 74).

The need for an institutional mechanism, such as a “fiscal council,” to enforce fiscal rules and keep a check on the central government’s fiscal consolidation was highlighted. Singh (2019) emphasized that there is a need for a consolidated fiscal roadmap for both the central government and the states, with same rules of the game for both. Another concern is that there is no constitutional check over borrowings for the central government, only for state government liabilities, as Article 293 (3) provides a constitutional check over state borrowings.

The 15th FC will be the first that will be writing on a “clean slate” (Ahluwaliah 2019). Ahluwaliah (2019) mentioned that 14th FC contributed to making a clean slate by providing substantial tax devolution, and he gave credit to the government for accepting the recommendations. He also highlighted the irony that we got rid of the unconditional grants, but the CSS continued. He proposed a very different way of doing revenue sharing across states by focusing on the fiscal equalization of the education and health sectors.

Ahluwaliah (2019) mentioned that many states have strongly objected to CSS. If you want to get away from revenue sharing, he suggested that one can go for equal per capita income. That would be mostly progressive, because the large-population states will gain a lot, and also it will create a basis to say that states should do their job on health and education, which they are visibly not doing, he added.

THE TOR OF REFERENCE OF THE FIFTEENTH FC

For the first time ever, a group of states raised issues about the TOR of the FCs. Reddy and Reddy (2019) noted that 15th FC “would have the courage and wisdom to be guided by the letter and spirit of the Constitutional provisions in discharging its responsibilities and upholding the

sanctity of the institution.” N. K. Singh (2019), the chairman of 15th FC, has only responded to the comments on the TOR that “it is the President’s prerogative to determine both the wording and the context of the TOR assigned to the Commission. And it is the prerogative of the Commission to address them in a manner that it considers appropriate. The Commission is not obliged to agree but the Commission is obliged to address the specific references which have been made to it. In doing so we are inherently bound by past precedence and the contours of our constitutional obligations.”

FISCAL MARKSMANSHIP AND “CONTINUITY” OF THE GRANTS COMMISSION

Reddy and Reddy (2019) highlighted that fiscal federalism is a dynamic process, so to say “a work in progress.” They analyzed whether any significant deviations between forecasts and actuals exist. However, given the fact that some states have raised concerns about the state GDP numbers used by the FCs, as well as the unrealistic revenue projections and expenditure compression, it is important to undertake systematic fiscal marksmanship analysis. Fiscal marksmanship analysis is about budget forecasting errors and the importance of reality checks, and it was highlighted when analyzing whether the perception among many states that the FC lacks marksmanship while forecasting the revenue and expenditure of the central government vis-a-vis the states was correct (Reddy and Reddy 2019).

Reddy and Reddy (2019) found that the allegations against the forecasts carried out by the FCs were absolutely incorrect, they were not lacking marksmanship and whatever approach was adopted by the FCs was uniformly applied for arriving at forecasts for the federal government as well as the states. All FC awards are based on realistic assumptions of what is an acceptable macroeconomic model in terms of key parameters such as revenue projections, state GDP growth, permissible expenditure growth, etc. (Singh 2019).

Table 1: Partitioning the Sources of Fiscal Forecasting Errors

Ex ante fiscal rules	<i>Bias</i>	Unequal variation	Random
Revenue receipts	0.24	0.07	0.69
Capital receipts	0.45	0.14	0.41
Revenue expenditure	0.05	0.15	0.80
Capital expenditure	0.06	0.22	0.72
<i>Revenue deficit</i>	0.36	0.01	0.63
<i>Fiscal deficit</i>	0.31	0.01	0.68
<i>Primary deficit</i>	0.32	0.00	0.67
Ex post fiscal rules	<i>Bias</i>	Unequal variation	Random
Revenue receipts	0.01	0.04	0.95
Revenue expenditure	0.00	0.31	0.69
Capital expenditure	0.00	0.02	0.98
Revenue deficit	0.04	0.01	0.96
Fiscal deficit	0.02	0.01	0.97
Primary deficit	0.05	0.02	0.93

Source: Chakraborty and Sinha (2018)

Technically, researchers can use the data provided in Reddy and Reddy (2019) to analyze the magnitude of the macro-fiscal variable errors and the source of the FC's projection errors (whether it is a "random error" and beyond the control of fiscal forecaster, or whether the errors are systemic and biased) (L. Chakraborty 2019). We can also analyze whether the magnitude of the errors was greater for revenue or expenditure, as well as for the capital or revenue budget. However, as indicated in table 1, forecasting errors are not something just confined to FCs; they are analyzed for federal and state government budgets as well. The source of such errors in forecasting the parameters is largely random in nature (table 1), which is beyond the purview of policymakers.

Is there a need for an institution to redress spatial inequalities in order to fill the vacuum created by abolishing the Planning Commission? One aspect that did not receive adequate recognition in the context of "what holds India together" is the role of the FCs. Reddy and Reddy (2019) rightly highlights the significance of the existing institutional mechanisms, such as the FCs, for providing "predictability in the federal fiscal relations," along with a smooth transition of political regimes through peaceful elections, state reorganization mechanisms, and the other institutions of economic management. Reddy and Reddy (2019) sheds light on these aspects of "asymmetric" and "cooperative" federalism in India. The effectiveness of fiscal federalism in

creating “convergence” is an empirical question and such empirical questions have gained significance globally. In India, has the “equality of processes” in fiscal federalism resulted in equality of outcomes? Has this goal of economic convergence been achieved, with poor states catching up in growth with the richer Indian states? Existing empirical evidence is mixed. There is convergence in social sector outcomes, such as in education and health, but there is no economic convergence (Chakraborty and Chakraborty 2018). Further empirical research is required in this area, incorporating fiscal federal variables, especially ex post to the phasing out of Planning Commission transfers that were designed to address such spatial inequalities.

Reddy and Reddy (2019) has effectively analyzed how the formation of states, economic convergence, and efficiency-equity principles have intertemporally influenced the thought processes of various FCs. One such crucial empirical question is about an economy’s reliance on history. Reddy and Reddy (2019) delves deep into the significance of the history of Indian fiscal federalism for understanding the contemporary debates—and such analysis is rare in the federalism literature in India. When the global recession gripped the schools of thought in economics, macroeconomists started realizing financial economics’ reliance on history. However, we still do not well understand the significance of the impact of this hysteresis on macroeconomic stability, growth, and development in the evolution of fiscal federal design (L. Chakraborty 2019).

PROGRESSIVITY OF THE TRANSFERS

There is a debate about the significance of conditional versus unconditional fiscal transfers. Some economists believe in a quick economic rebound to global goals and economic convergence through designing a plethora of conditional transfers, while some others raise concerns over transfers that are broadly of a one-size-fits-all design (L. Chakraborty 2019). Reddy and Reddy (2019) highlighted the lack of capacity to implement such one-size-fits-all transfers and suggested unconditionality in fiscal transfers. They highlight these questions and remain stoic about them, leaving a cue that researchers need to examine them empirically through the progressivity analysis of tax transfers versus grants.

STATE-LEVEL PUBLIC DEBT AND FISCAL CONSOLIDATION

On public debt, Reddy and Reddy (2019) recalls the extensive recourse to seigniorage financing—the automatic monetization—since 1957 by providing net RBI credit to the government to finance deficits, and the subsequent shift in the financing pattern from money financing to bond financing since 1990s after to the economic reforms. At the state level, Reddy and Reddy (2019) further points out that fiscal rules determine a state’s access to debt, subject to the approval of the central government. It is interesting to recall the changing perceptions on public debt in macroeconomic debates globally. The recent Fiscal Responsibility and Budget Management/rule-based fiscal policy in India stipulates a 60 percent threshold for public debt as part of fiscal consolidation. An empirical question one could pose here is whether a state’s access to public debt, though not good, can be so bad? Of course the answer is: It is context specific.

So what could be the plausible analytical framework to be considered when an FC takes steps toward public debt management? The portion on public debt in Reddy and Reddy (2019) brings to mind the address by Oliver Blanchard at the American Economic Association (AEA) meetings in Atlanta in January 2019. In his talk, he had put it up front that “public debt has no fiscal costs if the real rate of interest is not greater than the real rate of growth of the economy” (Blanchard 2019). He also highlighted that high public debt is not catastrophic if more debt can be justified by clear benefits, like public investment or output gap reduction. He also highlighted the hysteresis effects (the persistent impact of short-run fluctuations on the long-term potential output) and suggested that a temporary fiscal expansion during a contraction could reduce debt over a longer horizon.

There is an increasing recognition of the fact that public investment has suffered from fiscal consolidation across advanced and emerging economies (Blanchard 2019). This is particularly important when public investment is one of the crucial determinants in strengthening private corporate investment in the context of emerging economies (Chakraborty 2016). Blanchard (2019) mentioned that if we are worried about a bad equilibrium, it is better to have a contingent fiscal rule (which may not need to be used) rather than steady fiscal consolidation. Similarly, Reddy and Reddy (2019) noted that a uniform and rigid fiscal rule not only undermines the fiscal

autonomy of the states, but would also result in public (developmental) expenditure compression to comply with the numerical thresholds. This is refreshing, especially in the context when the path toward fiscal consolidation is equally important as the debt-target thresholds, because fiscal consolidation through strengthening tax buoyancy rather than public expenditure compression can be less detrimental to economic growth.

However the output gap can be a difficult notion for FCs. Extreme precaution is required when we measure deficits. It may be incorrect to think that cyclically adjusted fiscal deficit instead of fiscal deficit is what the FCs need to focus on. The empirical literature notes that we do not know whether disruptions or downturns permanently depress the level of output and employment or whether the economy can bounce back to its initial upward trend after a decline (as in the notion of a business cycle). In emerging economies there could be a drop from the trend growth rather than a deviation from the trend, illustrating that the “cycle is the trend” (Aguiar and Gopinath 2007). If empirical research proves that in an Indian context the business cycle does not exist, then the FC’s assumption of the cyclicity of deficits can be challenging and so far FCs have resisted using sophisticated notions of cyclical and structural deficits, as they cannot incorrectly assume that an upturn in the business cycle can eliminate the cyclical part of a deficit. Such elimination cannot happen if the economic growth cycle does not return to its prior trend growth path and therefore the buoyancy of revenue receipts could remain below their prior potential level.

THE THIRD TIER

Reddy and Reddy (2019) gives importance to fiscal decentralization. When it comes to the local government (the third tier), the real issue is unfunded mandates. To analyze this empirically, we need reliable data for the third tier. In India, general government data is a challenge. IMF government finance statistics give cross-country data on the general government (inclusive of national, state, and local governments) (L. Chakraborty 2019). The role of the State Finance Commissions (SFCs) also needs to be emphasized given their significance in providing a steady

flow of funds to the local governments. There is an increasing concern about the arbitrariness and ad-hocism of fiscal transfers at the third tier.

THE LINK BETWEEN THE GST COUNCIL AND FCs

Haseeb Drabu (2019) flagged three points. One, the need for a new model of fiscal federalism, in which he mentions that the seeds of that thought came from the 14th FC, suggesting that India should focus exclusively on revenue sharing and not expenditure underwriting. Two, he highlighted the need for resource sharing instead of revenue sharing, as India is a raw-material-deficit economy. He explained that the fiscal architecture should be designed for natural-resource sharing rather than revenue sharing. Three, he flagged the institutional relationship between the GST Council and the FC, noting the need for both coordination and a conflict resolution mechanism between these institutions.

Drabu (2019) eloquently put that 15th FC's TOR blatantly violate the constitution, and is making an effort to negate everything that 14th FC did. He urged for the FC's TOR be drafted by the GST Council or at least the empowered committee of finance ministers.

Reddy and Reddy (2019) talks about the “growing prominence of economists in the Commissions after the economic reforms,” which is quite contrary to the initial FC's composition of mostly lawyers to interpret constitutional clauses on federalism.

MODEL OF TAX SHARING VERSUS GRANTS

Finally, Reddy and Reddy (2019) does not explain the cross-country experiences of federalism, realizing how different Indian fiscal federalism is from other countries' models. In other federations, IGFTs are predominantly grants, not tax transfers, so such fiscal equalization models may be of different relevance to India. Reddy and Reddy (2019) is a must-read for scholars who

are interested in federalism, as it helps us to understand the nuances of federalism in order to better innovate FCs and explore more empirical questions in fiscal federalism.

To conclude, as eloquently put by Reddy and Reddy (2019), the 15th FC has a very big challenge in terms of incorporating new institutional developments in Indian fiscal federalism.

REFERENCES

- Aguiar, M., and G. Gopinath. 2007. "Emerging Market Business Cycles: The Cycle Is the Trend." *Journal of Political Economy* 115: 69–102.
- Ahluwalia, M. S. 2019. "Comments on Indian Fiscal Federalism." Panel on "Indian Fiscal Federalism," the at the book launch by Y. V. Reddy and G. R. Reddy, India International Centre, New Delhi, March 28.
- Alesina, A., G. Tabellini., and F. Trebbi. 2017. "Is Europe an Optimal Political Area?" *The Brookings Papers on Economic Activity* Spring: 169–213.
- Asian News International (ANI). 2018. "Chidambaram urges states to object 15th Finance Commission." ANI, May 14.
- Blanchard, O. 2019. "Public Debt and Low Interest Rate." Presidential address, delivered at the American Economic Association Meetings, Atlanta, January 6.
- Chakraborty, L. 2016. *Fiscal Consolidation, Budget Deficits and Macro Economy*. New Delhi: Sage Publications.
- . 2018. "15th Finance Commission: What really holds India together?" *The Financial Express*, February 12.
- . 2019. "Indian Fiscal Federalism: A Few Empirical Questions." Panel on "Indian Fiscal Federalism," the at the book launch by Y. V. Reddy and G. R. Reddy, India International Centre, New Delhi, March 28.
- Chakraborty, P. 2018a. "15th Finance Commission: Is it just a South India vs. North India debate?" *The Livemint*, April 10.
- . 2018b. "Finance Commission Transfers, The Subramanian formula is flawed?" *The Financial Express*, August 14.
- . 2019. "Fiscal federalism in India." *The India Forum*, April.
- Chakraborty, L., and P. Chakraborty. 2018. "Federalism, fiscal asymmetries and economic convergence: evidence from Indian states." *Asia-Pacific Journal of Regional Science* 2: 83–113.
- Chakraborty, P., L. Chakraborty, M. Gupta, A. Kaur, S. Garg, and M. A. Khan. 2018. "A Study of Intergovernmental Fiscal Transfers in India." Report. New Delhi: NIPFP and IDRC Canada.

- Chakraborty, L., and D. Sinha. 2018. “Has Fiscal Rule Changed the Fiscal Marksmanship of Union Government?” NIPFP Working Paper No. 234. New Delhi: National Institute of Public Finance and Policy (NIPFP).
- Drabu, H. 2019. “Comments on Indian Fiscal Federalism: Any link between GST Council and Finance Commission?” Panel on “Indian Fiscal Federalism,” the at the book launch by Y. V. Reddy and G. R. Reddy, India International Centre, New Delhi, March 28.
- Isaac, T. 2018. “An open letter to Finance Ministers.” *The Hindu* (Chennai), May 14.
- Isaac, T., R. Mohan, and L. Chakraborty. 2019a. *The Challenges to Indian Fiscal Federalism*. New Delhi: The Leftword Publishers.
- . 2019b. “Challenges to Indian Fiscal Federalism.” *Economic and Political Weekly* 54(9): 176–295.
- Kelkar, V. 2019. “Towards India’s New Fiscal Federalism.” *Journal of Quantitative Economics* 17(1): 237–48.
- M. -D. Moessinger. 2014. “Do the personal characteristics of finance ministers affect changes in public debt?” *Public Choice* 161(1/2): 183–207.
- Rao, M. G. 2017. “15th Finance Commission: To realise the goals under new India 2022, here is what centre must remember.” *The Financial Express*, December 5.
- Reddy, G. R. 2019. “Unique features of Indian Fiscal Federalism.” Panel on “Indian Fiscal Federalism,” the at the book launch by Y. V. Reddy and G. R. Reddy, India International Centre, New Delhi, March 28.
- Reddy, Y. V., and G. R. Reddy. 2019. *Indian Fiscal Federalism*. Oxford, UK: Oxford University Press.
- Das, S. S. 2019. “Some thoughts on Fiscal Federalism.” Speech delivered at the launch of the book *Indian Fiscal Federalism*, Mumbai, March 19.
- Singh, N. K. 2019. “Indian Fiscal Federalism.” Panel on “Indian Fiscal Federalism,” the at the book launch by Y. V. Reddy and G. R. Reddy, India International Centre, New Delhi, March 28.
- Subramanian, A. 2018. *Of Counsel: The Challenges of the Modi-Jaitley Economy*. Gurgaon: Penguin Random House India.
- The Hindu. 2019. “Fix ratio of tax sharing between Centre and States through a constitutional amendment: Rangarajan.” *The Hindu* (Chennai), March 9.

Vinod, H., H. Karun, and L. Chakraborty. 2019. “Encouraging private corporate investment.” In H. Vinod and C. R. Rao (eds.), *Handbook of Statistics*. Amsterdam: Elsevier.